

SAMPLE QUESTION PAPER (THEORY)
CLASS: XII SESSION: 2024-25
COMPUTER SCIENCE (083)

Time allowed: 3 Hours

Maximum Marks: 70

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1.	State True or False: The Python interpreter handles logical errors during code execution.	(1)
2.	Identify the output of the following code snippet: <pre>text = "PYTHONPROGRAM" text=text.replace('PY', '#') print(text)</pre> (A) #THONPROGRAM (B) ##THON#ROGRAM (C) #THON#ROGRAM (D) #YTHON#ROGRAM	(1)
3.	Which of the following expressions evaluates to False? (A) not(True) and False (B) True or False (C) not(False and True) (D) True and not(False)	(1)
4.	What is the output of the expression? <pre>country='International' print(country.split("n"))</pre> (A) ('I', 'ter', 'atio', 'al') (B) ['I', 'ter', 'atio', 'al'] (C) ['I', 'n', 'ter', 'n', 'atio', 'n', 'al'] (D) Error	(1)

5.	What will be the output of the following code snippet? <pre>message= "World Peace" print(message[-2::-2])</pre>	(1)
6.	What will be the output of the following code? <pre>tuple1 = (1, 2, 3) tuple2 = tuple1 tuple1 += (4,) print(tuple1 == tuple2)</pre> (A) True (B) False (C) tuple1 (D) Error	(1)
7.	If my_dict is a dictionary as defined below, then which of the following statements will raise an exception? <pre>my_dict = {'apple': 10, 'banana': 20, 'orange': 30}</pre> (A) my_dict.get('orange') (B) print(my_dict['apple', 'banana']) (C) my_dict['apple']=20 (D) print(str(my_dict))	(1)
8.	What does the list.remove(x) method do in Python? (A) Removes the element at index x from the list (B) Removes the first occurrence of value x from the list (C) Removes all occurrences of value x from the list (D) Removes the last occurrence of value x from the list	(1)
9.	If a table which has one Primary key and two alternate keys. How many Candidate keys will this table have? (A) 1 (B) 2 (C) 3 (D) 4	(1)
10.	Write the missing statement to complete the following code: <pre>file = open("example.txt", "r") data = file.read(100) _____ #Move the file pointer to the beginning of the file next_data = file.read(50) file.close()</pre>	(1)
11.	State whether the following statement is True or False: The finally block in Python is executed only if no exception occurs in the try block.	(1)

12.	What will be the output of the following code? <pre> c = 10 def add(): global c c = c + 2 print(c,end='#') add() c=15 print(c,end='%') </pre> (A) 12%15# (B) 15#12% (C) 12#15% (D) 12%15#	(1)
13.	Which SQL command can change the degree of an existing relation?	(1)
14.	What will be the output of the query? <pre> SELECT * FROM products WHERE product_name LIKE 'App%'; </pre> (A) Details of all products whose names start with 'App' (B) Details of all products whose names end with 'App' (C) Names of all products whose names start with 'App' (D) Names of all products whose names end with 'App'	(1)
15.	In which datatype the value stored is padded with spaces to fit the specified length. (A) DATE (B) VARCHAR (C) FLOAT (D) CHAR	(1)
16.	Which aggregate function can be used to find the cardinality of a table? (A) sum() (B) count() (C) avg() (D) max()	(1)
17.	Which protocol is used to transfer files over the Internet? (A) HTTP (B) FTP (C) PPP (D) HTTPS	(1)

18.	Which network device is used to connect two networks that use different protocols? (A) Modem (B) Gateway (C) Switch (D) Repeater	(1)
19.	Which switching technique breaks data into smaller packets for transmission, allowing multiple packets to share the same network resources.	(1)
	Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as: (A) Both A and R are true and R is the correct explanation for A (B) Both A and R are true and R is not the correct explanation for A (C) A is True but R is False (D) A is False but R is True	
20.	Assertion (A): Positional arguments in Python functions must be passed in the exact order in which they are defined in the function signature. Reasoning (R): This is because Python functions automatically assign default values to positional arguments.	(1)
21.	Assertion (A): A SELECT command in SQL can have both WHERE and HAVING clauses. Reasoning (R): WHERE and HAVING clauses are used to check conditions, therefore, these can be used interchangeably.	(1)
Q No	Section-B (7 x 2=14 Marks)	Marks
22.	How is a mutable object different from an immutable object in Python? Identify one mutable object and one immutable object from the following: (1,2), [1,2], {1:1,2:2}, '123'	(2)
23.	Give two examples of each of the following: (I) Arithmetic operators (II) Relational operators	(2)
24.	If L1=[1,2,3,2,1,2,4,2, . . .], and L2=[10,20,30, . . .], then (Answer using builtin functions only) (I) A) Write a statement to count the occurrences of 4 in L1. OR B) Write a statement to sort the elements of list L1 in ascending order.	(2)

	(II) A) Write a statement to insert all the elements of L2 at the end of L1. OR B) Write a statement to reverse the elements of list L2.					
25.	Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable b. <pre>import random a="Wisdom" b=random.randint(1,6) for i in range(0,b,2): print(a[i],end='#')</pre> <table><tr><td>(A) W#</td><td>(B) W##</td></tr><tr><td>(C) W##s#</td><td>(D) W###s#</td></tr></table>	(A) W#	(B) W##	(C) W##s#	(D) W###s#	(2)
(A) W#	(B) W##					
(C) W##s#	(D) W###s#					
26.	The code provided below is intended to swap the first and last elements of a given tuple. However, there are syntax and logical errors in the code. Rewrite it after removing all errors. Underline all the corrections made. <pre>def swap_first_last(tup) if len(tup) < 2: return tup new_tup = (tup[-1],) + tup[1:-1] + (tup[0]) return new_tup result = swap_first_last((1, 2, 3, 4)) print("Swapped tuple: " result)</pre>	(2)				
27.	(I) A) What constraint should be applied on a table column so that duplicate values are not allowed in that column, but NULL is allowed. OR B) What constraint should be applied on a table column so that NULL is not allowed in that column, but duplicate values are allowed.	(2)				

	(II) A) Write an SQL command to remove the Primary Key constraint from a table, named MOBILE. M_ID is the primary key of the table. OR B) Write an SQL command to make the column M_ID the Primary Key of an already existing table, named MOBILE.	
28.	A) List one advantage and one disadvantage of star topology. OR B) Expand the term SMTP. What is the use of SMTP?	(2)

Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29.	A) Write a Python function that displays all the words containing @cmail from a text file "Emails.txt". OR B) Write a Python function that finds and displays all the words longer than 5 characters from a text file "Words.txt".	(3)
30.	A) You have a stack named BooksStack that contains records of books. Each book record is represented as a list containing book_title, author_name, and publication_year. Write the following user-defined functions in Python to perform the specified operations on the stack BooksStack: (I) push_book(BooksStack, new_book): This function takes the stack BooksStack and a new book record new_book as arguments and pushes the new book record onto the stack. (II) pop_book(BooksStack): This function pops the topmost book record from the stack and returns it. If the stack is already empty, the function should display "Underflow". (III) peep(BookStack): This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'. OR (B) Write the definition of a user-defined function `push_even(N)` which accepts a list of integers in a parameter `N` and pushes all those integers which are even from the list `N` into a Stack named `EvenNumbers`. Write function pop_even() to pop the topmost number from the stack and returns it. If the stack is already empty, the function should display "Empty". Write function Disp_even() to display all element of the stack without deleting them. If the stack is empty, the function should display 'None'.	(3)

	For example: If the integers input into the list `VALUES` are: [10, 5, 8, 3, 12] Then the stack `EvenNumbers` should store: [10, 8, 12]																					
31.	Predict the output of the following code: <pre>d = {"apple": 15, "banana": 7, "cherry": 9} str1 = "" for key in d: str1 = str1 + str(d[key]) + "@" + "\n" str2 = str1[:-1] print(str2)</pre> OR Predict the output of the following code: <pre>line=[4,9,12,6,20] for I in line: for j in range(1,I%5): print(j,' #',end=" ") print()</pre>	(3)																				
Q No.	Section-D (4 x 4 = 16 Marks)	Marks																				
32.	Consider the table ORDERS as given below <table><tr><td>O_Id</td><td>C_Name</td><td>Product</td><td>Quantity</td><td>Price</td></tr><tr><td>1001</td><td>Jitendra</td><td>Laptop</td><td>1</td><td>12000</td></tr><tr><td>1002</td><td>Mustafa</td><td>Smartphone</td><td>2</td><td>10000</td></tr><tr><td>1003</td><td>Dhwani</td><td>Headphone</td><td>1</td><td>1500</td></tr></table> Note: The table contains many more records than shown here. A) Write the following queries: (I) To display the total Quantity for each Product, excluding Products with total Quantity less than 5. (II) To display the orders table sorted by total price in descending order. (III) To display the distinct customer names from the Orders table.	O_Id	C_Name	Product	Quantity	Price	1001	Jitendra	Laptop	1	12000	1002	Mustafa	Smartphone	2	10000	1003	Dhwani	Headphone	1	1500	(4)
O_Id	C_Name	Product	Quantity	Price																		
1001	Jitendra	Laptop	1	12000																		
1002	Mustafa	Smartphone	2	10000																		
1003	Dhwani	Headphone	1	1500																		

	(IV) Display the sum of Price of all the orders for which the quantity is null. OR B) Write the output (I) Select c_name, sum(quantity) as total_quantity from orders group by c_name; (II) Select * from orders where product like '%phone%'; (III) Select o_id, c_name, product, quantity, price from orders where price between 1500 and 12000; (IV) Select max(price) from orders;																																											
33.	A csv file "Happiness.csv" contains the data of a survey. Each record of the file contains the following data: - Name of a country - Population of the country - Sample Size (Number of persons who participated in the survey in that country) - Happy (Number of persons who accepted that they were Happy) For example, a sample record of the file may be: ['Signiland', 5673000, 5000, 3426] Write the following Python functions to perform the specified operations on this file: (I) Read all the data from the file in the form of a list and display all those records for which the population is more than 5000000. (II) Count the number of records in the file.	(4)																																										
34.	Saman has been entrusted with the management of Law University Database. He needs to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below. Table: FACULTY <table><tr><th>F_ID</th><th>FName</th><th>LName</th><th>Hire_Date</th><th>Salary</th></tr><tr><td>102</td><td>Amit</td><td>Mishra</td><td>12-10-1998</td><td>12000</td></tr><tr><td>103</td><td>Nitin</td><td>Vyas</td><td>24-12-1994</td><td>8000</td></tr><tr><td>104</td><td>Rakshit</td><td>Soni</td><td>18-5-2001</td><td>14000</td></tr><tr><td>105</td><td>Rashmi</td><td>Malhotra</td><td>11-9-2004</td><td>11000</td></tr><tr><td>106</td><td>Sulekha</td><td>Srivastava</td><td>5-6-2006</td><td>10000</td></tr></table> Table: COURSES <table><tr><th>C_ID</th><th>F_ID</th><th>CName</th><th>Fees</th></tr><tr><td>C21</td><td>102</td><td>Grid Computing</td><td>40000</td></tr><tr><td>C22</td><td>106</td><td>System Design</td><td>16000</td></tr></table>	F_ID	FName	LName	Hire_Date	Salary	102	Amit	Mishra	12-10-1998	12000	103	Nitin	Vyas	24-12-1994	8000	104	Rakshit	Soni	18-5-2001	14000	105	Rashmi	Malhotra	11-9-2004	11000	106	Sulekha	Srivastava	5-6-2006	10000	C_ID	F_ID	CName	Fees	C21	102	Grid Computing	40000	C22	106	System Design	16000	(4)
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	<table><tr><td>C23</td><td>104</td><td>Computer Security</td><td>8000</td></tr><tr><td>C24</td><td>106</td><td>Human Biology</td><td>15000</td></tr><tr><td>C25</td><td>102</td><td>Computer Network</td><td>20000</td></tr><tr><td>C26</td><td>105</td><td>Visual Basic</td><td>6000</td></tr></table> (I) To display complete details (from both the tables) of those Faculties whose salary is less than 12000. (II) To display the details of courses whose fees is in the range of 20000 to 50000 (both values included). (III) To increase the fees of all courses by 500 which have "Computer" in their Course names. (IV) (A) To display names (FName and LName) of faculty taking System Design. OR (B) To display the Cartesian Product of these two tables.	C23	104	Computer Security	8000	C24	106	Human Biology	15000	C25	102	Computer Network	20000	C26	105	Visual Basic	6000	
C23	104	Computer Security	8000															
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35.	A table, named STATIONERY, in ITEMDB database, has the following structure: <table><tr><td>Field</td><td>Type</td></tr><tr><td>itemNo</td><td>int(11)</td></tr><tr><td>itemName</td><td>varchar(15)</td></tr><tr><td>price</td><td>float</td></tr><tr><td>qty</td><td>int(11)</td></tr></table> Write the following Python function to perform the specified operation: AddAndDisplay(): To input details of an item and store it in the table STATIONERY. The function should then retrieve and display all records from the STATIONERY table where the Price is greater than 120. Assume the following for Python-Database connectivity: Host: localhost, User: root, Password: Pencil	Field	Type	itemNo	int(11)	itemName	varchar(15)	price	float	qty	int(11)	(4)						
Field	Type																	
itemNo	int(11)																	
itemName	varchar(15)																	
price	float																	
qty	int(11)																	
Q.No.	SECTION E (2 X 5 = 10 Marks)	Marks																
36.	Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this, he wants the following information of each candidate to be stored: - Candidate_ID – integer - Candidate_Name – string - Designation – string - Experience – float You, as a programmer of the company, have been assigned to do this job for Surya. (I) Write a function to input the data of a candidate and append it in a binary file.	(5)																

	(II) Write a function to update the data of candidates whose experience is more than 10 years and change their designation to "Senior Manager". (III) Write a function to read the data from the binary file and display the data of all those candidates who are not "Senior Manager".																																
37.	Event Horizon Enterprises is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, FOOD, MEDIA, DECORATORS. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various blocks/buildings and other given parameters. MUMBAI ADMIN FOOD MEDIA DECORATORS DELHI HEAD OFFICE Block to Block distances (in Mtrs.) <table><tr><th>From</th><th>To</th><th>Distance</th></tr><tr><td>ADMIN</td><td>FOOD</td><td>42 m</td></tr><tr><td>ADMIN</td><td>MEDIA</td><td>96 m</td></tr><tr><td>ADMIN</td><td>DECORATORS</td><td>48 m</td></tr><tr><td>FOOD</td><td>MEDIA</td><td>58 m</td></tr><tr><td>FOOD</td><td>DECORATORS</td><td>46 m</td></tr><tr><td>MEDIA</td><td>DECORATORS</td><td>42 m</td></tr></table> Distance of Delhi Head Office from Mumbai Campus = 1500 km Number of computers in each of the blocks/Center is as follows: <table><tr><td>ADMIN</td><td>30</td></tr><tr><td>FOOD</td><td>18</td></tr><tr><td>MEDIA</td><td>25</td></tr><tr><td>DECORATORS</td><td>20</td></tr><tr><td>DELHI HEAD OFFICE</td><td>18</td></tr></table>	From	To	Distance	ADMIN	FOOD	42 m	ADMIN	MEDIA	96 m	ADMIN	DECORATORS	48 m	FOOD	MEDIA	58 m	FOOD	DECORATORS	46 m	MEDIA	DECORATORS	42 m	ADMIN	30	FOOD	18	MEDIA	25	DECORATORS	20	DELHI HEAD OFFICE	18	(5)
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	(I) Suggest the most appropriate location of the server inside the MUMBAI campus. Justify your choice. (II) Which hardware device will you suggest to connect all the computers within each building? (III) Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. Which cable would you suggest for the most efficient data transfer over the network? (IV) Is there a requirement of a repeater in the given cable layout? Why/ Why not? (V) A) What would be your recommendation for enabling live visual communication between the Admin Office at the Mumbai campus and the DELHI Head Office from the following options: a) Video Conferencing b) Email c) Telephony d) Instant Messaging OR B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the MUMBAI campus?	
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MARKING SCHEME
Class: XII Session: 2024-25
Computer Science (083)

Time allowed: 3 Hours

Maximum Marks: 70

Q No.	SECTION A (21X1=21)	Marks
1.	False (1 mark for correct answer)	(1)
2.	(A) #THONPROGRAM (1 mark for correct answer)	(1)
3.	(A) not (True) and False (1 mark for correct answer)	(1)
4.	(B) ['l', 'ter', 'atio', 'al'] (1 mark for correct answer)	(1)
5.	ce lo (1 mark for correct answer)	(1)
6.	(B) False (1 mark for correct answer)	(1)
7.	(B) print(my_dict['apple', 'banana']) (1 mark for correct answer)	(1)
8.	(B) Removes the first occurrence of value x from the list (1 mark for correct answer)	(1)
9.	(C) 3 (1 mark for correct answer)	(1)
10.	file.seek(0) (OR file.seek(0,0)) (1 mark for correct answer)	(1)
11.	False (1 mark for correct answer)	(1)
12.	(C) 12#15% (1 mark for correct answer)	(1)
13.	Alter (or Alter Table) (1 mark for correct answer)	(1)

14.	(A) Details of all products whose names start with 'App' (1 mark for correct answer)	(1)
15.	(D) CHAR (1 mark for correct answer)	(1)
16.	(B) count() (1 mark for correct answer)	(1)
17.	(B) FTP (1 mark for correct answer)	(1)
18.	(B) Gateway (1 mark for correct answer)	(1)
19.	(B) Packet Switching (1 mark for correct answer)	(1)
20.	(C) A is True but R is False. (1 mark for correct answer)	(1)
21.	(C) A is True but R is False. (1 mark for correct answer)	(1)

Q No.	SECTION B (7 X 2 =14)	Marks
22.	A mutable object can be updated whereas an immutable object cannot be updated. Mutable object: [1,2] or {1:1,2:2} (Any one) Immutable object: (1,2) or '123' (Any one) (1 mark for correct difference) ($\frac{1}{2} \times 2 = 1$ Mark for selecting correct objects)	(2)
23.	(I) Arithmetic operators: +, - (II) Relational operators: >, >= ($\frac{1}{2} \times 4 = 2$ Marks for each correct operator)	(2)
24.	(I) A) L1.count(4) OR B) L1.sort() (1 mark for correct answer)	(2)

	(II) A) L1.extend(L2) OR B) L2.reverse() <i>(1 mark for correct answer)</i>	
25.	(A), (C) <i>(½ x 2 = 1 Mark)</i> Minimum and maximum possible values of the variable b: 1,6 <i>(½ x 2 = 1 Mark)</i>	(2)
26.	<pre>def swap_first_last(tup): if len(tup) < 2: <u>return tup</u> new_tup = (tup[-1],) + tup[1:-1] + (tup[0],) return new_tup result = swap_first_last((1, 2, 3, 4)) print("Swapped <u>tuple:</u>", <u>result</u>)</pre> <i>(½ mark each for correcting 4 mistakes)</i>	(2)
27.	(I) A) UNIQUE OR B) NOT NULL <i>(1 mark for correct answer)</i> (II) A) ALTER TABLE MOBILE DROP PRIMARY KEY; OR B) ALTER TABLE MOBILE ADD PRIMARY KEY (M_ID); <i>(1 mark for correct answer)</i>	(2)
28.	A) Advantage: Network extension is easy. Disadvantage: Failure of switch/hub results in failure of the network. <i>(1 mark for correct Advantage)</i> <i>(1 mark for correct Disadvantage)</i> OR	(2)

	B) SMTP: Simple Mail Transfer Protocol. SMTP is used for sending e-mails from client to server. <i>(1 mark for correct expansion)</i> <i>(1 mark for correct usage)</i>	
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Q No.	SECTION C (3 X 3 = 9)	Marks
29.	(A) <pre>def show(): f=open("Email.txt",'r') data=f.read() words=data.split() for word in words: if '@cmail' in word: print(word,end=' ') f.close()</pre> <i>(½ mark for correct function header)</i> <i>(½ mark for correctly opening the file)</i> <i>(½ mark for correctly reading from the file)</i> <i>(½ mark for splitting the text into words)</i> <i>(1 mark for correctly displaying the desired words)</i> OR (B) <pre>def display_long_words(): with open("Words.txt", 'r') as file: data=file.read() words=data.split() for word in words: if len(word)>5: print(word,end=' ') </pre> <i>(½ mark for correct function header)</i> <i>(½ mark for correctly opening the file)</i> <i>(½ mark for correctly reading from the file)</i> <i>(½ mark for splitting the text into words)</i> <i>(1 mark for correctly displaying the desired words)</i>	(3)

30.	(A) (I) <pre>def push_book(BooksStack, new_book): BooksStack.append(new_book)</pre> (II) <pre>def pop_book(BooksStack): if not BooksStack: print("Underflow") else: return(BooksStack.pop())</pre> (III) <pre>def peep(BooksStack): if not BooksStack: print("None") else: print(BooksStack[-1])</pre> <i>(3x1 mark for correct function body; No marks for any function header as it was a part of the question)</i> OR (B) <pre>def push_even(N): EvenNumbers = [] for num in N: if num % 2 == 0: EvenNumbers.append(num) return EvenNumbers</pre> VALUES = [] <pre>for i in range(5): VALUES.append(int(input("Enter an integer: ")))</pre> EvenNumbers = push_even(VALUES) <pre>def pop_even(): if not EvenNumbers: print("Underflow") else: print(EvenNumbers.pop())</pre> pop_even()	(3)
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	<pre>def Disp_even(): if not EvenNumbers: print("None") else: print(EvenNumbers[-1]) Disp_even()</pre> <i>(1/2 for identifying even numbers)</i> <i>(1/2 mark for correctly adding data to stack)</i> <i>(1/2 mark for correctly popping data on the stack and 1/2 mark for checking condition)</i> <i>(1/2 mark for correctly displaying the data with none)</i> <i>(1/2 mark for function call statements)</i>	
31.	(A) 15@ 7@ 9 OR (B) 1 #2 #3# 1 #2 #3 # 1 # <i>(1 mark for each correct line of output)</i> <i>(deduct ½ mark for not printing @/#)</i>	(3)

Q No.	SECTION D (4 X 4 = 16)	Marks										
32.	(A) (I)select Product, sum(Quantity) from orders group by product having sum(Quantity)>=5; (II)select * from orders order by Price desc; (III)select distinct C_Name from orders; (IV)select sum(price) as total_price from orders where Quantity IS NULL; (4 x 1 mark for each correct query) OR (B) (I)<table><tr><th>C_Name</th><th>Total_Quantity</th></tr><tr><td>-----</td><td> -----</td></tr><tr><td>Jitendra</td><td> 1</td></tr><tr><td>Mustafa</td><td> 2</td></tr><tr><td>Dhwani</td><td> 1</td></tr></table>	C_Name	Total_Quantity	-----	-----	Jitendra	1	Mustafa	2	Dhwani	1	(4)
C_Name	Total_Quantity											
-----	-----											
Jitendra	1											
Mustafa	2											
Dhwani	1											

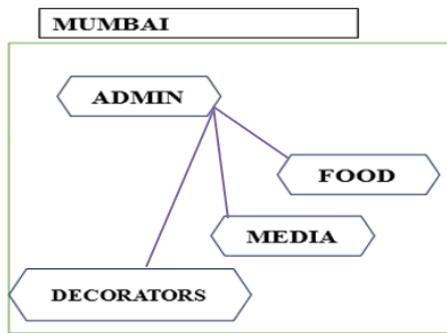
	(II) <table><tr><th>O_Id</th><th>C_Name</th><th>Product</th><th>Quantity</th><th>Price</th></tr><tr><td>-----</td><td> -----</td><td> -----</td><td> -----</td><td> -----</td></tr><tr><td>1002</td><td> Mustafa</td><td> Smartphone</td><td> 2</td><td> 10000</td></tr><tr><td>1003</td><td> Dhwani</td><td> Headphone</td><td> 1</td><td> 1500</td></tr></table> (III) <table><tr><th>O_Id</th><th>C_Name</th><th>Product</th><th>Quantity</th><th>Price</th></tr><tr><td>-----</td><td> -----</td><td> -----</td><td> -----</td><td> -----</td></tr><tr><td>1001</td><td> Jitendra</td><td> Laptop</td><td> 1</td><td> 12000</td></tr><tr><td>1002</td><td> Mustafa</td><td> Smartphone</td><td> 2</td><td> 10000</td></tr><tr><td>1003</td><td> Dhwani</td><td> Headphone</td><td> 1</td><td> 1500</td></tr></table> (IV) MAX(Price) ----- 12000 (4 x 1 mark for each correct output)	O_Id	C_Name	Product	Quantity	Price	-----	-----	-----	-----	-----	1002	Mustafa	Smartphone	2	10000	1003	Dhwani	Headphone	1	1500	O_Id	C_Name	Product	Quantity	Price	-----	-----	-----	-----	-----	1001	Jitendra	Laptop	1	12000	1002	Mustafa	Smartphone	2	10000	1003	Dhwani	Headphone	1	1500	
O_Id	C_Name	Product	Quantity	Price																																											
-----	-----	-----	-----	-----																																											
1002	Mustafa	Smartphone	2	10000																																											
1003	Dhwani	Headphone	1	1500																																											
O_Id	C_Name	Product	Quantity	Price																																											
-----	-----	-----	-----	-----																																											
1001	Jitendra	Laptop	1	12000																																											
1002	Mustafa	Smartphone	2	10000																																											
1003	Dhwani	Headphone	1	1500																																											
33.	(I) <pre>def show(): import csv f=open("happiness.csv",'r') records=csv.reader(f) next(records, None) #To skip the Header row for i in records: if int(i[1])>5000000: print(i) f.close()</pre> (½ mark for opening in the file in right mode) (½ mark for correctly creating the reader object) (½ mark for correctly checking the condition) (½ mark for correctly displaying the records) (II) <pre>def Count_records(): import csv f=open("happiness.csv",'r') records=csv.reader(f) next(records, None) #To skip the Header row count=0 for i in records: count+=1 print(count) f.close()</pre>	(4)																																													

	(½ mark for opening in the file in right mode) (½ mark for correctly creating the reader object) (½ mark for correct use of counter) (½ mark for correctly displaying the counter) Note (for both parts (I) and (II)): (i) Ignore import csv as it may be considered the part of the complete program, and there is no need to import it in individual functions. (ii) Ignore <code>next(records, None)</code> as the file may or may not have the Header Row.	
34.	(I) Select * from FACULTY natural join COURSES where Salary<12000; Or Select * from FACULTY, COURSES where Salary<12000 and faculty.f_id=courses.f_id; (II) Select * from courses where fees between 20000 and 50000; (III) Update courses set fees=fees+500 where CName like '%Computer%'; (IV) (A) Select FName, LName from faculty natural join courses where Came="System Design"; Or Select FName, LName from faculty, courses where Came="System Design" and faculty.f_id=courses.f_id; OR (B) Select * from FACULTY, COURSES; (4x1 mark for each correct query)	(4)
35.	<pre>def AddAndDisplay(): import mysql.connector as mycon mydb=mycon.connect(host="localhost",user="root", passwd="Pencil",database="ITEMDB") mycur=mydb.cursor() no=int(input("Enter Item Number: ")) nm=input("Enter Item Name: ") pr=float(input("Enter price: ")) qty=int(input("Enter qty: ")) query="INSERT INTO stationery VALUES ({},'{'},{},{})" query=query.format(no,nm,pr,qty) mycur.execute(query) mydb.commit() mycur.execute("select * from stationery where price>120") for rec in mycur: print(rec)</pre>	(4)

	<i>(½ mark for correctly importing the connector object)</i> <i>(½ mark for correctly creating the connection object)</i> <i>(½ mark for correctly creating the cursor object)</i> <i>(½ mark for correctly inputting the data)</i> <i>(½ mark for correct creation of first query)</i> <i>(½ mark for correctly executing the first query with commit)</i> <i>(½ mark for correctly executing the second query)</i> <i>(½ mark for correctly displaying the data)</i>	
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Q No.	SECTION E (2 X 5 = 10)	Marks
36.	(I) <pre>import pickle def input_candidates(): candidates = [] n = int(input("Enter the number of candidates you want to add: ")) for i in range(n): candidate_id = int(input("Enter Candidate ID: ")) candidate_name = input("Enter Candidate Name: ") designation = input("Enter Designation: ") experience = float(input("Enter Experience (in years): ")) candidates.append([candidate_id, candidate_name, designation, experience]) return candidates candidates_list = input_candidates() def append_candidate_data(candidates): with open('candidates.bin', 'ab') as file: for candidate in candidates: pickle.dump(candidate, file) print("Candidate data appended successfully.") append_candidate_data(candidates_list)</pre> (II) <pre>import pickle def update_senior_manager(): updated_candidates = [] try: with open('candidates.bin', 'rb') as file: while True: try: candidate = pickle.load(file) if candidate[3] > 10: # If experience > 10 years candidate[2] = 'Senior Manager' updated_candidates.append(candidate) except EOFError:</pre>	(5)

	<pre> break # End of file reached except FileNotFoundError: print("No candidate data found. Please add candidates first.") return with open('candidates.bin', 'wb') as file: for candidate in updated_candidates: pickle.dump(candidate, file) print("Candidates updated to Senior Manager where applicable.") update_senior_manager() (III) import pickle def display_non_senior_managers(): try: with open('candidates.bin', 'rb') as file: while True: try: candidate = pickle.load(file) if candidate[2] != 'Senior Manager': # Check if not Senior Manager print(f"Candidate ID: {candidate[0]}") print(f"Candidate Name: {candidate[1]}") print(f"Designation: {candidate[2]}") print(f"Experience: {candidate[3]}") print("-----") except EOFError: break # End of file reached except FileNotFoundError: print("No candidate data found. Please add candidates first.") display_non_senior_managers() (1/2 mark of import pickle) (1/2 mark for input) (1/2 mark for opening file in append mode and 1/2 mark for using dump) (1/2 mark for opening file in read mode and 1/2 mark for using load) (1 mark for checking the condition and updating the value) (1 mark for checking the condition and displaying data correctly) </pre>	
37.	(I) ADMIN Block as it has maximum number of computers. (1 mark for correct answer) (II) Switch (1 mark for correct answer) (III)	(5)



(or Any other correct layout)

Cable: Coaxial cable

($\frac{1}{2}$ mark for correct layout + $\frac{1}{2}$ mark for correct table type)

(IV) There is no requirement of the Repeat as the optical fibre cable used for the network can carry the data to much longer distances than within the campus.

(1 mark for correct answer)

(V) (A) a) Video Conferencing

OR

(B) LAN

(1 mark for correct answer)

Sample Question Paper (Theory)

Maximum Marks: 70

- Please check this question paper contains 35 questions.
- The paper is divided into 4 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

Que s No	Question	Marks
<u>SECTION A</u>		
1	State True or False: “In a Python program, if a <code>break</code> statement is given in a nested loop, it terminates the execution of all loops in one go.”	1
2	In a table in MYSQL database, an attribute A of datatype <code>varchar(20)</code> has the value “Keshav”. The attribute B of datatype <code>char(20)</code> has value “Meenakshi”. How many characters are occupied by attribute A and attribute B? a. 20,6 b. 6,20 c. 9,6 d. 6,9	1
3	What will be the output of the following statement: <pre>print(3-2**2**3+99/11)</pre> a. 244 b. 244.0 c. -244.0 d. Error	1
4	Select the correct output of the code:	1

	<pre>s = "Python is fun" l = s.split() s_new = "-".join([l[0].upper(), l[1], l[2].capitalize()]) print(s_new)</pre> Options: a. PYTHON-IS-Fun b. PYTHON-is-Fun c. Python-is-fun d. PYTHON-Is -Fun	
5	In MYSQL database, if a table, Alpha has degree 5 and cardinality 3, and another table, Beta has degree 3 and cardinality 5, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a. 5,3 b. 8,15 c. 3,5 d. 15,8	1
6	Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth Technology to connect two devices. Which type of network will be formed in this case? a. PAN b. LAN c. MAN d. WAN	1
7	Which of the following will delete key-value pair for key = "Red" from a dictionary D1? a. delete D1("Red") b. del D1["Red"] c. del.D1["Red"] d. D1.del["Red"]	1
8	Consider the statements given below and then choose the correct output from the given options: <pre>pride="#G20 Presidency" print(pride[-2:2:-2])</pre>	1

	Options: a. ndsr b. ceieP0 c. ceieP d. yndsr	
9	Which of the following statement(s) would give an error during execution of the following code? <pre>tup = (20,30,40,50,80,79) print(tup) #Statement 1 print(tup[3]+50) #Statement 2 print(max(tup)) #Statement 3 tup[4]=80 #Statement 4</pre> Options: a. Statement 1 b. Statement 2 c. Statement 3 d. Statement 4	1
10	What possible outputs(s) will be obtained when the following code is executed? <pre>import random myNumber=random.randint(0,3) COLOR=["YELLOW","WHITE","BLACK","RED"] for I in range(1,myNumber): print(COLOR[I],end="*") print()</pre> Options: a.	1

	RED* WHITE* BLACK* b. WHITE* BLACK* c. WHITE* WHITE* BLACK* BLACK* d. YELLOW* WHITE*WHITE* BLACK* BLACK* BLACK*	
11	Fill in the blank: The modem at the sender's computer end acts as a _____. a. Model b. Modulator c. Demodulator d. Convertor	1
12	Consider the code given below: <pre> b=100 def test(a) : _____ # missing statement b=b+a print(a,b) test(10) print(b) </pre>	1

	Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 110? Options: a. <code>global a</code> b. <code>global b=100</code> c. <code>global b</code> d. <code>global a=100</code>	
13	State whether the following statement is True or False: An exception may be raised even if the program is syntactically correct.	1
14	Which of the following statements is FALSE about keys in a relational database? a. Any candidate key is eligible to become a primary key. b. A primary key uniquely identifies the tuples in a relation. c. A candidate key that is not a primary key is a foreign key. d. A foreign key is an attribute whose value is derived from the primary key of another relation.	1
15	Fill in the blank: In case of _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver.	1
16	Which of the following functions changes the position of file pointer and returns its new position? a. <code>flush()</code> b. <code>tell()</code> c. <code>seek()</code> d. <code>offset()</code>	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A	

	(c) A is True but R is False (d) A is false but R is True	
17	Assertion(A): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory.	1
18	Assertion(A): Python Standard Library consists of various modules. Reasoning(R): A function in a module is used to simplify the code and avoids repetition.	1
<u>SECTION B</u>		
19	(i) Expand the following terms: POP3 , URL (ii) Give one difference between XML and HTML. OR (i) Define the term bandwidth with respect to networks. (ii) How is http different from https?	1+1= 2
20	The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing all syntax and logical errors . Underline all the corrections made. <pre> define revNumber(num) : rev = 0 rem = 0 While num > 0: rem ==num %10 rev = rev*10 + rem num = num//10 return rev print(revNumber(1234)) </pre>	2

21	Write a function <code>countNow (PLACES)</code> in Python, that takes the dictionary, <code>PLACES</code> as an argument and displays the names (in uppercase) of the places whose names are longer than 5 characters. For example, Consider the following dictionary <pre>PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"}</pre> The output should be: LONDON NEW YORK OR Write a function, <code>lenWords (STRING)</code>, that takes a string as an argument and returns a tuple containing length of each word of a string. For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3)	2
22	Predict the output of the following code: <pre>S = "LOST" L = [10,21,33,4] D={} for I in range(len(S)): if I%2==0: D[L.pop()] = S[I] else: D[L.pop()] = I+3 for K,V in D.items(): print(K,V,sep="*")</pre>	2
23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To insert an element 200 at the third position, in the list <code>L1</code>. (ii) To check whether a string named, <code>message</code> ends with a full stop / period or not.	1+1=2

	OR A list named <code>studentAge</code> stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age value from the given list.	
24	Ms. Shalini has just created a table named “Employee” containing columns <code>Ename</code>, <code>Department</code> and <code>Salary</code>. After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column <code>EmpId</code> of integer type to the table <code>Employee</code>. Thereafter, write the command to insert the following record in the table: <code>EmpId- 999</code> <code>Ename- Shweta</code> <code>Department: Production</code> <code>Salary: 26900</code> OR Zack is working in a database named <code>SPORT</code>, in which he has created a table named “Sports” containing columns <code>SportId</code>, <code>SportName</code>, <code>no_of_players</code>, and <code>category</code>. After creating the table, he realized that the attribute, <code>category</code> has to be deleted from the table and a new attribute <code>TypeSport</code> of data type string has to be added. This attribute <code>TypeSport</code> cannot be left blank. Help Zack write the commands to complete both the tasks.	2
25	Predict the output of the following code:	2

	<pre>def Changer (P, Q=10) : P=P/Q Q=P%Q return P A=200 B=20 A=Changer (A, B) print (A, B, sep='\$') B=Changer (B) print (A, B, sep='\$', end='###')</pre>	
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SECTION C

26	Predict the output of the Python code given below: <pre>Text1="IND-23" Text2="" I=0 while I<len(Text1): if Text1[I]>="0" and Text1[I]<="9": Val = int(Text1[I]) Val = Val + 1 Text2=Text2 + str(Val) elif Text1[I]>="A" and Text1[I]<="Z": Text2=Text2 + (Text1[I+1]) else: Text2=Text2 + "*" I+=1 print(Text2)</pre>	3														
27	Consider the table CLUB given below and write the output of the SQL queries that follow. <table><tr><th>CID</th><th>CNAME</th><th>AGE</th><th>GENDER</th><th>SPORTS</th><th>PAY</th><th>DOAPP</th></tr><tr><td>5246</td><td>AMRITA</td><td>35</td><td>FEMALE</td><td>CHESS</td><td>900</td><td>2006-03-27</td></tr></table>	CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP	5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27	$1 \times 3 = 3$
CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP										
5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27										

	4687	SHYAM	37	MALE	CRICKET	1300	2004-04-15											
	1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007-06-18											
	1622	AMRIT	28	MALE	KARATE	1000	2007-09-05											
	1256	AMINA	36	FEMALE	CHESS	1100	2003-08-15											
	1720	MANJU	33	FEMALE	KARATE	1250	2004-04-10											
	2321	VIRAT	35	MALE	CRICKET	1050	2005-04-30											
	(i) SELECT COUNT(DISTINCT SPORTS) FROM CLUB; (ii) SELECT CNAME, SPORTS FROM CLUB WHERE DOAPP<"2006-04-30" AND CNAME LIKE "%NA"; (iii) SELECT CNAME, AGE, PAY FROM CLUB WHERE GENDER = "MALE" AND PAY BETWEEN 1000 AND 1200;																	
28	Write a function in Python to read a text file, Alpha.txt and displays those lines which begin with the word ‘You’. OR Write a function, vowelCount() in Python that counts and displays the number of vowels in the text file named Poem.txt.							3										
29	Consider the table Personal given below: Table: Personal <table><tr><td>P_ID</td><td>Name</td><td>Desig</td><td>Salary</td><td>Allowance</td></tr><tr><td>P01</td><td>Rohit</td><td>Manager</td><td>89000</td><td>4800</td></tr></table>							P_ID	Name	Desig	Salary	Allowance	P01	Rohit	Manager	89000	4800	1*3=3
P_ID	Name	Desig	Salary	Allowance														
P01	Rohit	Manager	89000	4800														

	<table><tr><td>P02</td><td>Kashish</td><td>Clerk</td><td>NULL</td><td>1600</td></tr><tr><td>P03</td><td>Mahesh</td><td>Supervisor</td><td>48000</td><td>NULL</td></tr><tr><td>P04</td><td>Salil</td><td>Clerk</td><td>31000</td><td>1900</td></tr><tr><td>P05</td><td>Ravina</td><td>Supervisor</td><td>NULL</td><td>2100</td></tr></table>	P02	Kashish	Clerk	NULL	1600	P03	Mahesh	Supervisor	48000	NULL	P04	Salil	Clerk	31000	1900	P05	Ravina	Supervisor	NULL	2100	
P02	Kashish	Clerk	NULL	1600																		
P03	Mahesh	Supervisor	48000	NULL																		
P04	Salil	Clerk	31000	1900																		
P05	Ravina	Supervisor	NULL	2100																		
	Based on the given table, write SQL queries for the following: (i) Increase the salary by 5% of personals whose allowance is known. (ii) Display Name and Total Salary (sum of Salary and Allowance) of all personals. The column heading ‘Total Salary’ should also be displayed. (iii) Delete the record of personals who have salary greater than 25000																					
30	A list, <code>NList</code> contains following record as list elements: <pre>[City, Country, distance from Delhi]</pre> Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named <code>travel</code>. (i) <code>Push_element(NList)</code>: It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi. (ii) <code>Pop_element()</code>: It pops the objects from the stack and displays them. Also, the function should display “Stack Empty” when there are no elements in the stack. For example: If the nested list contains the following data: <pre>NList=[["New York", "U.S.A.", 11734], ["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194], ["London", "England", 6693],</pre>	3																				

	<pre>["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]] The stack should contain: ['Naypyidaw', 'Myanmar'], ['Dubai', 'UAE'], ['Columbo', 'Sri Lanka'] The output should be: ['Columbo', 'Sri Lanka'] ['Dubai', 'UAE'] ['Naypyidaw', 'Myanmar'] Stack Empty</pre>	
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SECTION D

31

Consider the tables PRODUCT and BRAND given below:

1*4=
4

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

Table: BRAND

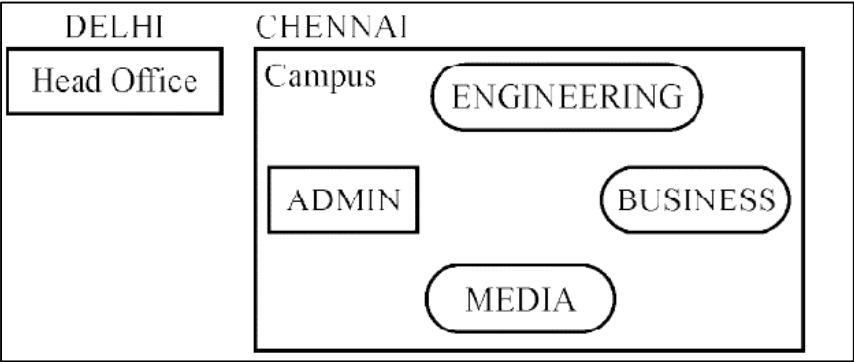
BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

	Write SQL queries for the following: (i) Display product name and brand name from the tables PRODUCT and BRAND. (ii) Display the structure of the table PRODUCT. (iii) Display the average rating of Medimix and Dove brands (iv) Display the name, price, and rating of products in descending order of rating.	
32	Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named <code>Result.csv</code>, to store the results of students in different sports events. The structure of <code>Result.csv</code> is : <pre>[St_Id, St_Name, Game_Name, Result]</pre> Where <code>St_Id</code> is Student ID (integer) <code>ST_name</code> is Student Name (string) <code>Game_Name</code> is name of game in which student is participating(string) <code>Result</code> is result of the game whose value can be either 'Won', 'Lost' or 'Tie' For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions: <code>Accept()</code> – to accept a record from the user and add it to the file <code>Result.csv</code>. The column headings should also be added on top of the csv file. <code>wonCount()</code> – to count the number of students who have won any event. As a Python expert, help him complete the task.	4
	<u>SECTION E</u>	

33

Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA

1*5=5



Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.

	b) Which network device will be used to connect computers in each block to form a local area network? c) Which block, in Chennai Campus should be made the server? Justify your answer. d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI? e) Is there a requirement of a repeater in the given cable layout? Why/Why not?	
34	(i) Differentiate between r+ and w+ file modes in Python. (ii) Consider a file, <code>SPORT.DAT</code>, containing records of the following structure: <pre>[SportName, TeamName, No_Players]</pre> Write a function, <code>copyData()</code>, that reads contents from the file <code>SPORT.DAT</code> and copies the records with Sport name as “Basket Ball” to the file named <code>BASKET.DAT</code>. The function should return the total number of records copied to the file <code>BASKET.DAT</code>. OR (i) How are text files different from binary files? (ii) A Binary file, <code>CINEMA.DAT</code> has the following structure: <pre>{MNO: [MNAME, MTYPE]}</pre> Where MNO – Movie Number MNAME – Movie Name MTYPE is Movie Type Write a user defined function, <code>findType(mtype)</code>, that accepts <code>mtype</code> as parameter and displays all the records from the binary file <code>CINEMA.DAT</code>, that have the value of Movie Type as <code>mtype</code>.	2+3=5
35	(i) Define the term Domain with respect to RDBMS. Give one example to support your answer.	1+4=5

(ii) Kabir wants to write a program in Python to insert the following record in the table named `Student` in `MYSQL` database, `SCHOOL`:

- `rno`(Roll number)- integer
- `name`(Name) - string
- `DOB` (Date of birth) – Date
- `Fee` – float

Note the following to establish connectivity between Python and MySQL:

- Username - `root`
- Password - `tiger`
- Host - `localhost`

The values of fields `rno`, `name`, `DOB` and `fee` has to be accepted from the user. Help Kabir to write the program in Python.

OR

(i) Give one difference between alternate key and candidate key.

(ii) Sartaj has created a table named `Student` in `MYSQL` database, `SCHOOL`:

- `rno`(Roll number)- integer
- `name`(Name) - string
- `DOB` (Date of birth) – Date
- `Fee` – float

Note the following to establish connectivity between Python and MySQL:

- Username - `root`
- Password - `tiger`
- Host - `localhost`

	Sartaj, now wants to display the records of students whose fee is more than 5000. Help Sartaj to write the program in Python.	
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Class XII
Computer Science (083)
Marking Scheme

Time Allowed: 3 hours

MM: 70

<u>Ques No</u>	Question and Answers	Distribution of Marks	Total Marks
<u>SECTION A</u>			
1	False	1 mark for correct answer	1
2	Option b 6,20	1 mark for correct answer	1
3	Option c -244.0	1 mark for correct answer	1
4	PYTHON-is-Fun	1 mark for correct answer	1
5	Option b 8,15	1 mark for correct answer	1
6	Option a PAN	1 mark for correct answer	1
7	Option b <code>del D1["Red"]</code>	1 mark for correct answer	1
8	Option b	1 mark for correct answer	1

	ceieP0		
9	Option d Statement 4	1 mark for correct answer	1
10	Option b WHITE* BLACK*	1 mark for correct answer	1
11	Option b Modulator	1 mark for correct answer	1
12	Option c global b	1 mark for correct answer	1
13	True	1 mark for correct answer	1
14	Option c A candidate key that is not a primary key is a foreign key.	1 mark for correct answer	1
15	Circuit	1 mark for correct answer	1
16	Option c seek ()	1 mark for correct answer	1
17	Option d A is false but R is True	1 mark for correct answer	1

	(ii) https (Hyper Text Transfer Protocol Secure) is the protocol that uses SSL (Secure Socket Layer) to encrypt data being transmitted over the Internet. Therefore, https helps in secure browsing while http does not.	1 mark for correct difference.	
20	<pre> def revNumber (num) : rev = 0 rem = 0 while num > 0: rem = num %10 rev = rev*10 + rem num = num//10 return rev print (revNumber (1234)) </pre>	½ mark for each correction made	2
21	<pre> PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Dubai"} def countNow(PLACES): for place in PLACES.values(): if len(place)>5: print(place.upper()) countNow(PLACES) </pre> OR	½ mark for correct function header ½ mark for correct loop ½ mark for correct if statement ½ mark for displaying the output ½ mark for correct function header ½ mark for using split()	2

	<pre>def lenWords (STRING) : T=() L=STRING.split() for word in L: length=len(word) T=T+(length,) return T</pre> <u>Note: Any other correct logic may be marked</u>	½ mark for adding to tuple ½ mark for return statement	
22	4*L 33*4 21*S 10*6	½ mark for each correct line of output	2
23	(i) L1.insert(2,200) (ii) message.endswith('.') OR <pre>import statistics print (statistics.mode(studentAge))</pre>	1 mark for each correct statement 1 mark for correct import statement 1 mark for correct command with mode() and print()	1+1=2
24	SQL Command to add primary key: <pre>ALTER TABLE Employee ADD EmpId INTEGER PRIMARY KEY;</pre>	1 mark for correct ALTER TABLE command	2

	As the primary key is added as the last field, the command for inserting data will be: <pre>INSERT INTO Employee VALUES ("Shweta", "Production", 26900, 999);</pre> Alternative answer: <pre>INSERT INTO Employee (EmpId, Ename, Department, Salary) VALUES (999, "Shweta", "Production", 26900);</pre> OR To delete the attribute, category: <pre>ALTER TABLE Sports DROP category;</pre> To add the attribute, TypeSport <pre>ALTER TABLE Sports ADD TypeSport char(10) NOT NULL;</pre>	1 mark for correct INSERT command 1 mark for correct ALTER TABLE command with DROP 1 mark for correct ALTER TABLE command with ADD	
25	10.0\$20 10.0\$2.0###	1 mark for each correct line of output	2
<u>SECTION C</u>			
26	ND-*34	½ mark for each correct character	3
27			
	(i) COUNT(DISTINCT SPORTS)	1 mark for each correct output	1*3=3

	4 (ii) <table><tr><th>CNAME</th><th>SPORTS</th></tr><tr><td>AMINA</td><td>CHESS</td></tr></table> (iii) <table><tr><th>CNAME</th><th>AGE</th><th>PAY</th></tr><tr><td>AMRIT</td><td>28</td><td>1000</td></tr><tr><td>VIRAT</td><td>35</td><td>1050</td></tr></table>	CNAME	SPORTS	AMINA	CHESS	CNAME	AGE	PAY	AMRIT	28	1000	VIRAT	35	1050		
CNAME	SPORTS															
AMINA	CHESS															
CNAME	AGE	PAY														
AMRIT	28	1000														
VIRAT	35	1050														
28	<pre>def test(): fObj1 = open("Alpha.txt", "r") data = fObj1.readlines() for line in data: L=line.split() if L[0]=="You": print(line) fObj1.close()</pre> OR	1 mark for correctly opening and closing files ½ mark for correctly reading data 1 mark for correct loop and if statement ½ mark for displaying data 1 mark for correctly opening and closing the files	3													

	<pre> def vowelCount(): fObj = open("Alpha.txt", "r") data = str(fObj.read()) cnt=0 for ch in data: if ch in "aeiouAEIOU": cnt=cnt+1 print(cnt) fObj.close() </pre> <u>Note: Any other correct logic may be marked</u>	½ mark for correctly reading data 1 mark for correct loop and if statement ½ mark for displaying the output.	
29	(i) <pre> UPDATE Personal SET Salary=Salary + Salary*0.5 WHERE Allowance IS NOT NULL; </pre> (ii) <pre> SELECT Name, Salary + Allowance AS "Total Salary" FROM Personal; </pre> (iii) <pre> DELETE FROM Personal WHERE Salary>25000 </pre>	1 mark for each correct query	1*3=3

30	<pre> travel = [] def Push_element(NList): for L in NList: if L[1] != "India" and L[2]<3500: travel.append([L[0],L[1]]) def Pop_element(): while len(travel): print(travel.pop()) else: print("Stack Empty") </pre>	1 ½ marks for each function	3
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SECTION D

31	(i) <pre> SELECT PName, BName FROM PRODUCT P, BRAND B WHERE P.BID=B.BID; </pre> (ii) <pre> DESC PRODUCT; </pre> (iii) <pre> SELECT BName, AVG(Rating) FROM PRODUCT P, BRAND B WHERE P.BID=B.BID GROUP BY BName HAVING BName='Medimix' OR BName='Dove'; </pre> (iv) <pre> SELECT PName, UPrice, Rating FROM PRODUCT ORDER BY Rating DESC; </pre>	1 mark for each correct query	1*4=4
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32	<pre> def Accept(): sid=int(input("Enter Student ID ")) sname=input("Enter Student Name ") game= input("Enter name of game ") res=input("Enter Result") headings=["Student ID","Student Name"," Game Name", "Result"] data=[sid,sname,game,res] f=open('Result.csv','a',newline='') csvwriter=csv.writer(f) csvwriter.writerow(headings) csvwriter.writerow(data) f.close() def wonCount(): f=open('Result.csv','r') csvreader=csv.reader(f, delimiter=',') head=list(csvreader) print(head[0]) for x in head: if x[3]=="WON": print(x) f.close() </pre>	½ mark for accepting data correctly ½ mark for opening and closing file ½ mark for writing headings ½ mark for writing row ½ mark for opening and closing file ½ mark for reader object ½ mark for print heading ½ mark for printing data	4
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SECTION E

33	a) <pre> graph TD Admin[Admin] --- Bus Engineering[ENGINEERING] --- Bus Media[MEDIA] --- Bus Business[BUSINESS] --- Bus subgraph Bus_Topology [Bus Topology] Admin Engineering Media Business end </pre>	1 mark for each correct answer	1*5=5
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	<pre>def copyData(): fObj = open("SPORT.DAT", "rb") fObj1 = open("BASKET.DAT", "wb") cnt=0 try: while True: data = pickle.load(fObj) print(data) if data[0] == "Basket Ball": pickle.dump(data, fObj1) cnt+=1 except: fObj.close() fObj1.close() return cnt</pre> OR (i) Text files: • Extension is .txt • Data is stored in ASCII format that is human readable • Has EOL character that terminates each line of data stored in the text files Binary Files • Extension is .dat • Data is stored in binary form (0s and 1s), that is not human readable. (ii)	½ mark for correct return statement ½ mark for correctly opening and closing files ½ mark for correct try and except block ½ mark for correct loop ½ mark for correct if statement 1 mark for correctly displaying data	
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	<pre> def Searchtype(mtype): fObj = open("CINEMA.DAT", "rb") try: while True: data = pickle.load(fObj) if data[2] == mtype: print("Movie number:",data[0]) print("Movie Name:",data[1]) print("Movie Type:",data[2]) except EOFError: fObj.close() </pre> <u>Note: Any other correct logic may be marked</u>		
35	(i) Domain is a set of values from which an attribute can take value in each row. For example, roll no field can have only integer values and so its domain is a set of integer values (ii) <pre> import mysql.connector as mysql con1 = mysql.connect(host="localhost",user="root", password="tiger", database="sample2023") mycursor=con1.cursor() rno = int(input("Enter Roll Number:: ")) name = input("Enter the name:: ") DOB = input("Enter date of birth:: ") fee= float(input("Enter Fee:: ")) query = "INSERT into student values({},'{}','{}',{})".format(rno,name,DOB,fee) mycursor.execute(query) con1.commit() print("Data added successfully") con1.close() </pre> <u>Note: Any other correct logic may be marked</u>	½ mark for correct definition ½ mark for correct example ½ mark for importing correct module 1 mark for correct connect() ½ mark for correctly accepting the input 1 ½ mark for correctly	1+4=5

		displaying data	
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KENDRIYA VIDYALAYA SANGATHAN AGRA REGION
FIRST PRE BOARD EXAMINATION (2023-24)

CLASS : XII

SUBJECT : COMPUTER SCIENCE (083)

TIME : 03 HOURS

MAXIMUM MARKS : 70

General instructions:

1. Please check this question paper contains 35 questions.
2. The paper is divided into 4 Sections- A, B, C, D and E.
3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
8. All programming questions are to be answered using Python Language only.

SECTION A		
Q1	What will be the evaluation of python expression – $2*2**3**2+2$ a) 130 <u>b) 1026</u> c) 258 d) 68	1
Q2	Which of the following is not a valid identifier in python? a) Def b) false <u>c) True</u> d) print	1
Q3	Given a string s = 'Happy Diwali', what will be the value of string slice s[::-2]? <u>a) iai pa</u> b) HpyDwl c) lwDypH <u>d) iaiypH</u>	1
Q4	Which among the following is/are mutable data types in python? <u>a) list</u> b) tuple c) string d) boolean	1
Q5	Which python statement will delete all elements of a dictionary named d? a) d.delete(all) b) d.delete() <u>c) d.clear()</u> d) d.empty()	1
Q6	The return type of the print() function is: a) string b) integer c) list <u>d) None</u>	1
Q7	Consider a tuple t = (10, 15, [20, 25], 30, 35). Identify the statement that will result in an error. a) print(t[2]) b) t[2][0] = 200 <u>c) t[3] = 300</u> d) print(len(t))	1
Q8	Which of the following symbols is not an operator in python? a) // b) * c) ~ <u>d) \$</u>	1
Q9	Which of the following transmission media does not use electric signals to carry data? a) Twisted Pair Cable <u>b) Optical Fiber</u> c) Co-axial cable d) None of the above	1

Q10	Which of the following connector is used for Ethernet cables in a LAN? a) RJ11 <u>b) RJ45</u> c) ETH0 d) F Connector	1
Q11	Which two of the following queries are not valid in MySQL? <u>a)</u> select gender, count(*) from students having age > 15; b) select gender, count(*) from students where age > 15 group by gender; c) select gender, sum(age) from students group by gender having sum(age) > 25; d) select gender, max(<u>age</u>) from students group by gender order by max(age);	1
Q12	Which of the following is not a DDL command in SQL? a) ALTER <u>b) UPDATE</u> c) DROP d) CREATE	1
Q13	If a MySQL table named A has 5 columns and 6 rows and another table B has 3 columns and 4 rows, then what will be the degree and cardinality of the cartesian product of A and B? a) 15, 24 b) 8, 10 <u>c) 8, 24</u> d) 5, 24	1
Q14	Which of the following is the unit used to measure data transfer rate of a computer network? a) mps b) bps c) Hertz (Hz) d) None of these	1
Q15	Which of the following keyword is used along with try block to handle exceptions. a) catch b) handle c) follow d) except	1
Q16	Which of the following are not correct ways of opening a text file in python? a) F = open('story.txt', 'read') b) with open('story.txt') as F: c) F = open('story.txt', 'a+') d) Open(F) = 'story.txt'	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for A c) A is True but R is False d) A is false but R is True		
Q17	Answer with (a) to (d) given above. Assertion (A): A function definition can have zero parameters/formal arguments. Reasoning (R): Parenthesis are not mandatory to call a function with zero arguments.	1

Q18	Answer with (a) to (d) given above. Assertion (A): Number of arguments passed to a function may not match the number of parameters in the function definition. Reasoning (R): Function parameters can have default values.	1
SECTION B		
Q19	a) Expand the following abbreviations: i) VoIP ii) XML b) Name one protocol that can be used to access a computer remotely. OR Compare twisted pair cable and fiber optic cable based on – speed, cost, electromagnetic interference and distance.	2
Q20	Sameer has written a python program to count the occurrences of elements of a list using a dictionary. But the code has some syntax and logical errors. Re-write the code after removing all such errors and underline your corrections. <pre>L = [1,2,1,1,2,1,2,3,5,4,1,2,5,4,4,5] D = {} foreach x in L: if x in D: D[x]=+1 Else: D(x)=1</pre>	2
Q21	Write a function modifyList(L,n) in Python, which accepts a list L of numbers and n is a numeric value. Function should: • Add 5 to all the values divisible by n • Subtract 5 from all values not divisible by n • Display the modified list Example: If L= [10,11,13,15,20,2] and n=5 then the function should print [15,6,8,20,25,-3] OR Write a user defined function palindrome(s) – which takes a string 's' as argument and returns True if it is a palindrome and False if it is not. (A palindrome is a word, phrase, or sequence that reads the same backwards as forwards – example: madam)	2

Q22	Predict the output of following python code: <pre> S = "BHARAT" D = {} for i in range(len(S)): if i%2==0: D[S[i]] = i+1 else: D[S[i]] = i-1 for k,v in D.items(): print(k,v,sep="#") </pre>	2
Q23	Consider a List L = [10,20,30,[40,50,60],70,80] Write a single line python statement (using List methods only) to: - Insert an element 55 as the second last element of the inner list, so that L becomes [10,20,30,[40,50,55,60],70,80] - Delete the inner list so the L becomes [10,20,30,70,80]	2
Q24	Consider a MySQL table named "Students" with columns – RollNo, Name, Marks. Write SQL commands to: - Add a new column named 'Phone' to store the phone number of the students. - Set RollNo as the primary key of the table. OR Consider a MySQL table named "Books" with columns – BookID, BookName, Pages, Price, Rating. The rating column has data type INT. Write SQL commands to: - Change the data type of rating column to allow for floating point values (1.0 to 5.0) - Delete the pages column from the database.	1 x 2 = 2
Q25	Write the output of the following python code. <pre> def runme(x=1, y=2): x = x+y y+=1 print(x, '\$', y) return x,y a,b = runme() print(a, '#', b) runme(a,b) </pre>	2

SECTION C

Q26	Write the output of the following python code. <pre>def change(msg): n = len(msg) new_msg = '' for i in range(0,n): if not msg[i].isalpha(): new_msg = new_msg + '@' else: if msg[i].isupper(): new_msg = new_msg + msg[i]*2 else: new_msg = new_msg + msg[i] return new_msg new_msg = change("15 New Men") print(new_msg)</pre>	3																																																						
Q27	Consider the table given below and write the output of SQL queries (i) to (iii). TABLE: PLAYERS <table><tr><th>P ID</th><th>Name</th><th>Game</th><th>Gender</th><th>DoB</th><th>Salary</th></tr><tr><td>101</td><td>Virat Kohli</td><td>Cricket</td><td>M</td><td>1990-12-08</td><td>12500</td></tr><tr><td>102</td><td>PV Sindhu</td><td>Badminton</td><td>F</td><td>1993-01-12</td><td>9000</td></tr><tr><td>103</td><td>Rahul Sharma</td><td>Cricket</td><td>M</td><td>1988-01-05</td><td>10000</td></tr><tr><td>104</td><td>Saina Nehwal</td><td>Badminton</td><td>F</td><td>1990-12-25</td><td>8500</td></tr><tr><td>105</td><td>Pankaj Advani</td><td>Snooker</td><td>M</td><td>1985-06-16</td><td>10000</td></tr><tr><td>106</td><td>Harmanpreet</td><td>Cricket</td><td>F</td><td>1994-10-10</td><td>12500</td></tr><tr><td>107</td><td>Sardar Singh</td><td>Hockey</td><td>M</td><td>1982-11-09</td><td>9000</td></tr><tr><td>108</td><td>V Anand</td><td>Chess</td><td>M</td><td>1982-11-01</td><td>12000</td></tr></table> i. Select Name, Salary from players where Game not in ('cricket', 'chess'); ii. Select sum(Salary) from players where Name like '%i'; iii. Select count(distinct Game) from players;	P ID	Name	Game	Gender	DoB	Salary	101	Virat Kohli	Cricket	M	1990-12-08	12500	102	PV Sindhu	Badminton	F	1993-01-12	9000	103	Rahul Sharma	Cricket	M	1988-01-05	10000	104	Saina Nehwal	Badminton	F	1990-12-25	8500	105	Pankaj Advani	Snooker	M	1985-06-16	10000	106	Harmanpreet	Cricket	F	1994-10-10	12500	107	Sardar Singh	Hockey	M	1982-11-09	9000	108	V Anand	Chess	M	1982-11-01	12000	1 x 3 = 3
P ID	Name	Game	Gender	DoB	Salary																																																			
101	Virat Kohli	Cricket	M	1990-12-08	12500																																																			
102	PV Sindhu	Badminton	F	1993-01-12	9000																																																			
103	Rahul Sharma	Cricket	M	1988-01-05	10000																																																			
104	Saina Nehwal	Badminton	F	1990-12-25	8500																																																			
105	Pankaj Advani	Snooker	M	1985-06-16	10000																																																			
106	Harmanpreet	Cricket	F	1994-10-10	12500																																																			
107	Sardar Singh	Hockey	M	1982-11-09	9000																																																			
108	V Anand	Chess	M	1982-11-01	12000																																																			
Q28	Neha has a very large text file named 'log_report.txt' which contains more than 50,000 log entries for logins on a local ssh server. Following is a truncated view of the file log_report.txt. <pre>2022-10-14:22:40:39 Login failed > from 192.168.11.16 2022-10-14:22:20:19 Login success > from 192.168.11.220 2022-10-14:10:14:40 Login success > from 192.168.0.66 2022-10-13:11:19:17 Login failed > from 192.168.0.45 2022-10-14:22:40:39 Login success > from 192.168.11.156</pre>	3																																																						

Neha has asked you to help her count the number of failed login attempts. Write a function **countFailedAttempts()** in python to count the number of lines containing the word 'failed' in the text file 'log_report.txt'.

OR

Rajat is working on a language statistics project. He has to analyze the writings of a famous English novelist. He has downloaded a text file named 'russel.txt' containing major writings of the author. He is stuck at the problem of counting the number of words starting with 'th' or 'Th'. Being a computer science student, help Rajat by writing a function **countWords()** in python to count the number of words starting with 'Th' or 'th' in the text file 'russel.txt'.

Q29 Consider the table Employees Given below and write SQL queries (i) to (iii) based on it.

3

Table: Employees

emp_id	name	dob	gender	salary
101	Simar	1994-01-15	F	26000
102	Alok	1995-10-18	M	17000
103	Hasan	1996-08-21	M	25000
104	Kriti	1993-01-12	F	35000
105	Gulab	1994-02-20	M	NULL
106	Jaya	1993-12-01	F	16500

- To increase the salary of all Female employees by 10%.
- To display the name and gender of employees for whom salary is NULL.
- To delete the records of all employees born before 01 January 1995.

Q30 Consider a Nested List '**Inventory**' in which all the elements are lists of the format – [ItemID, ItemName, Price, Quantity]. Write the following user defined functions in python to perform the task specified on the stack named 'items' which is initially an empty list.

3

- **Push_item(Inventory)** – It takes nested list Inventory as argument and pushes records of those items onto stack which have quantity > 100.
- **Pop_items()** – It repeatedly pops the top element of stack and displays it. Appropriate message should be displayed when there are no more elements left in the stack.

For example, if

```
Inventory = [[101, 'Pen', 10, 120],  
            [102, 'Pencil', 10, 100],  
            [103, 'Eraser', 5, 90],  
            [104, 'Notebook', 20, 52],  
            [105, 'Marker', 30, 130],  
            [106, 'Sharpener', 5, 110],]
```

After execution of Push_Items(Inventory), Stack should contain:

[[101, 'Pen', 10, 120], [105, 'Marker', 30, 130], [106, 'Sharpener', 5, 110]] ← Top

The output after Pop_Items() should be:

[106, 'Sharpener', 5, 110]

[105, 'Marker', 30, 130]

[101, 'Pen', 10, 120]

Stack Empty

SECTION D

Q31 Write the output of SQL queries (i) to (iv) based on the relations Employees and Departments given below:

4

Table: Employees

emp_id	name	dob	gender	salary	dept_id
101	Simar	1994-01-15	F	26000	1
102	Alok	1995-10-18	M	17000	2
103	Hasan	1996-08-21	M	25000	1
104	Kriti	1993-01-12	F	35000	1
105	Gulab	1994-02-20	M	15000	3
106	Jaya	1993-12-01	F	16500	4

Table: Departments

dept_id	dept_name	dept_location
1	HR	GF-005
2	Sales	GF-006
3	Analysis	SF-204
4	Training	FF-102

- Display the Average Salary for Male and Female Employees.
- Display the Employee Name and Department Name for all employees in descending order of their salary.
- Display the maximum salary of employees born after 31 December 1995.
- Display the department id and number of employees for all departments having more than 1 employee.

Q32 Vijay has created a csv file 'FOOTBALL.CSV' to store player name, matches and goals scored. Write a program in python that defines and calls following user defined functions.

- addPlayer(name, matches, goals)** : Three parameters – name of the player, matches played and goals scored are passed to the function. The function should create a list object and append it to the csv file.
- highestAverage()** : The function should read the csv file and display the name of the player with the highest average goals (goals/matches).

SECTION E

Q33 Stalwart Solutions Pvt Ltd. is setting up its campus in Noida. The company campus will have four blocks – Shivaji (S), Tagore (T), Ashoka (A) and Raman (R). The company has consulted you for networking at the campus. Suggest the best possible solutions for their questions (a) to (e) based on the information given below.

Block	No. of Computers
Shivaji (S)	75
Tagore (T)	125
Ashoka(A)	25
Raman (R)	20

Blocks	Distance (m)
Shivaji to Tagore	25
Shivaji to Ashoka	150
Shivaji to Raman	125
Tagore to Ashoka	75
Tagore to Raman	90



- Suggest the most appropriate block to house the FTP server. Justify your answer.
- Which Hardware/Software can be installed prevent unauthorized access to FTP server?
- Suggest the best economical wired transmission medium and draw the cable layout diagram to connect the four blocks.
- The company doesn't want to use any wired media for connecting the computers within the Raman block. Which device can be used to provide wireless access, given that all the machines in this block are wi-fi enabled.

	e) The company wishes to minimize the broadcast traffic in the LAN established. Keeping this in mind, which device will you suggest to connect the computers inside every block – hub or switch? Why?	
Q34	(i) What is the difference between text files and binary files? (ii) Shweta had stored all her passwords in one binary file named 'PASSWORDS.DAT'. The passwords were stored in following format: [app_name, username, password] Write a function search(app) that accepts title as a parameter and displays the username and password for that particular app. OR (i) What happens when we try to open a file that does not exist in rb, ab, rb+ and wb+ modes? (ii) Consider a file named 'STUDENTS.DAT', containing records in following format: [ADM_NO, NAME, CLASS, SECTION] Write a function, filterStudents(clas, sec), which takes class and section as parameters and copies the records matching with that class and section to a new file named 'FILTERED.DAT'.	2 + 3 = 5
Q35	(i) What are the characteristics of a Primary key in RDBMS. Which attribute can act as a primary key for a table storing details of all students of a school? (ii) Heerakh wants to write a program in python to add some records into the CRICKET Table of SPORTS Database. The MySQL server is running on LOCALHOST and the login credentials are as following: Username – heerakh Password – happy The columns of the CRICKET table are described below: pid (Player ID) – integer pname (Player Name) – string innings (Innings Played) – integer runs (Runs Scored) – integer wickets (Wickets taken) – integer	1 + 4 = 5

Help her write a program, which will accept the player details from user and insert a new row into the table.

OR

(i) What do you mean by term domain in context of RDBMS? What will be the domain for an attribute called 'age' of voters of a village?

(ii) Keshav wants to write a program in python to display some records from the **CRICKET** Table of **SPORTS** Database. The MySQL server is running on LOCALHOST and the login credentials are as following:

Username – **keshav**

Password – **karma**

The columns of the CRICKET table are described below:

pid (Player ID) – integer

pname (Player Name) – string

innings (Innings Played) – integer

runs (Runs Scored) – integer

wickets (Wickets taken) – integer

Help him write a program, which will display the name (only name) of all players who have player 100 or more innings.

o——| End of Paper |——o

KENDRIYA VIDYALAYA SANGATHAN AGRA REGION
FIRST PRE BOARD EXAMINATION (2023-24)

CLASS : XII
SUBJECT : COMPUTER SCIENCE (083)

TIME : 03 HOURS
MAXIMUM MARKS : 70

[ANSWER KEY / MARKING SCHEME]

SECTION A (No marks for partially correct answers)		
Q1	b) 1026	1
Q2	c) True	1
Q3	a) iai pa	1
Q4	a) list	1
Q5	c) d.clear()	1
Q6	d) None	1
Q7	c) t[3] = 300	1
Q8	d) \$	1
Q9	b) Optic Fiber	1
Q10	b) RJ45	1
Q11	a) select gender, count(*) from students having age >15;	1
Q12	b) UPDATE	1
Q13	c) 8, 24	1
Q14	b) bps	1
Q15	d) except	1
Q16	a) F = open('story.txt', 'read') d) Open(F) = 'story.txt'	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for A c) A is True but R is False d) A is false but R is True	
Q17	c) A is True but R is False	1

Q18	a) Both A and R are true and R is the correct explanation for A	1
SECTION B		
Q19	a) i) Voice over Internet Protocol ii) eXtensible Markup Language ($\frac{1}{2} + \frac{1}{2}$) b) Telnet / SSH (1) OR $\frac{1}{2}$ Mark for each factor of comparison	2
Q20	<pre> L = [1, 2, 1, 1, 2, 1, 2, 3, 5, 4, 1, 2, 5, 4, 4, 5] D = {} for x in L: if x in D: D[x] += 1 else: D[x] = 1 (½ Mark for each correction) </pre>	2
Q21	1 Mark for correct iterations 1 Mark for correct modifications OR 1 Mark for taking input and returning True or False 1 Mark for comparing the string with its reverse	2
Q22	B#1 H#0 A#5 R#2 T#4	2
Q23	i. L[3].insert(2, 55) (1 mark) ii. L.pop(3) or L.pop(-3) or L.remove([40,50,55,60]) (1 mark)	2
Q24	(i) ALTER TABLE Students ADD Phone INT; (1 mark) (ii) ALTER TABLE Students ADD PRIMARY KEY (RollNo); (1 mark) OR (i) ALTER TABLE Books MODIFY rating DECIMAL(2,1); (1 mark) (ii) ALTER TABLE Books DROP [COLUMN] pages; (1 mark)	1 x 2 = 2
Q25	3 \$ 3 3 # 3 6 \$ 4	2

SECTION C

Q26	@@@NNew@MMen	3														
Q27	i.<table><tr><th>Name</th><th>Salary</th></tr><tr><td>PV Sindhu</td><td>Badminton</td></tr><tr><td>Saina Nehwal</td><td>Badminton</td></tr><tr><td>Pankaj Advani</td><td>Snooker</td></tr><tr><td>V Anand</td><td>Hockey</td></tr></table> ii.<table><tr><th>sum(Salary)</th></tr><tr><td>22500</td></tr></table> iii.<table><tr><th>count(distinct Game)</th></tr><tr><td>5</td></tr></table>	Name	Salary	PV Sindhu	Badminton	Saina Nehwal	Badminton	Pankaj Advani	Snooker	V Anand	Hockey	sum(Salary)	22500	count(distinct Game)	5	1 x 3 = 3
Name	Salary															
PV Sindhu	Badminton															
Saina Nehwal	Badminton															
Pankaj Advani	Snooker															
V Anand	Hockey															
sum(Salary)																
22500																
count(distinct Game)																
5																
Q28	def countFailedAttempts(): f = open('log_report.txt') lines = f.readlines() c = 0 for line in lines: if 'failed' in line: #if line.split()[2] == 'failed' c+=1 f.close() return c #print(c) OR def countWords(): f = open('russel.txt') words = f.read().split() c=0 for word in words: if word.startswith('th') or word.startswith('Th'): #if word[0:2] == 'th' or word[0:2] - 'Th' c+=1	3														

	<pre>f.close() return c #print(c)</pre>	
Q29	i. UPDATE Employees SET salary = salary + salary*0.1 WHERE gender = 'F'; ii. SELECT name, gender from Employees WHERE salary is NULL; iii. DELETE from Employees WHERE dob<'1995-01-01';	3
Q30	<pre>def Push_item(Inventory): for item in Inventory: if item[3]>100: items.append(item) def Pop_items(): try: item = items.pop() print(item) except: print("Stack Empty") (or any other valid implementation)</pre>	3
SECTION D		
Q31	i. SELECT gender, avg(Salary) from Employees group by gender; ii. SELECT name, dept_name from Employees E and Departments D WHERE E.dept_id = D.dept_id ORDER BY Salary DESC; iii. SELECT max(Salary) FROM Employees WHERE dob>'1995-12-31'; iv. SELECT dept_id, count(*) from Employees GROUP BY dept_id HAVING count(*)>1;	4
Q32	<pre>def addPlayer(name, matches, goals): player_data = [name, matches, goals] with open('FOOTBALL.CSV', 'a', newline='') as csvfile: writer = csv.writer(csvfile) writer.writerow(player_data) def highestAverage():</pre>	4

	<pre>max_average = 0 best_player = "" with open('FOOTBALL.CSV', 'r') as csvfile: reader = csv.reader(csvfile) next(reader) # Skip the header row if it exists for row in reader: name, matches, goals = row[0], int(row[1]), int(row[2]) if matches > 0: average = goals / matches if average > max_average: max_average = average best_player = name if best_player: print(best_player) else: print("No player data found in the CSV file.")</pre>	
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SECTION E		
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Q33	a) Tagore, as it has maximum number of computers. Housing the server here will reduce the external traffic. b) Firewall c) Ethernet Cable <pre>graph LR S[House] --- 25 m T[Office] A[House] --- 75 m T T --- 90 m R[House]</pre> d) Wi-Fi Router / Access Points e) Switch, as hub will create the broadcast traffic.	1 x 5 = 5
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Q35	(i) $\frac{1}{2} + \frac{1}{2}$ <pre> import mysql.connector as ms conn = ms.connect(host="localhost", user="heerakh", passwd='happy', db='sports') cur = conn.cursor() pid = int(input("Enter player ID : ")) pname = input("Enter name : ") inn = int(input("Enter innings : ")) runs = int(input("Runs Scored : ")) wickets = int(input("Wickets : ")) query = f"insert into cricket values({pid}, '{pname}', {innings}, {runs}, {wickets})" try: cur.execute(query) print("Row inserted") except: print("SQL Error") conn.close() </pre> OR (i) $\frac{1}{2} + \frac{1}{2}$ (ii) <pre> import mysql.connector as ms conn = ms.connect(host="localhost", user="keshav", passwd='karma', db='sports') cur = conn.cursor() query = "select pname from cricket where innings>100" cur.execute(query) for row in cur.fetchall(): print(row[0]) conn.close() </pre>	1 + 4 = 5
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o — | End of Paper | — o

KENDRIYA VIDYALAYA SANGATHAN ERNAKULAM REGION
PRE-BOARD EXAMINATION 2023-24
COMPUTER SCIENCE (083)

Time allowed: 3 Hours

Maximum Marks: 70

General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

Q.NO	QUESTION	MARKS
SECTION - A		
1	Which of the following is a keyword in Python? a) true b) For c) pre-board d) False	1
2	What will be the output for the following Python statement? print(20//3*2+(35//7.0)) a) 17.0 b) 17 c) 8.5 d) 8	1
3	In MYSQL database, if a table, BOOK has degree 8 and cardinality 7, and another table, SALE has degree 4 and cardinality 7, what will be the degree and cardinality of the Cartesian product of BOOK and SALE ? a) 32 , 49 b) 12, 49 c) 12 ,14 d) 32,14	1
4	What is “ C “ stands in TCP/IP ? a) Common b) Centre c)Control d) Coordinate	1
5	What is printed by the following statements? ANIMAL={"dog":10,"tiger":5,"elephant":15,"Cow":3} print("Tiger" not in ANIMAL) a) True b)False c)Error d) None	1
6	Consider the following statements and choose the correct output from the given options : EXAM="COMPUTER SCIENCE" print(EXAM[12:-2]) a) EN b) CI c)SCIENCE d) ENCE	1
7	What will be the output of the following code ? Tuple1=(10,)	1

	<code>Tuple2=Tuple1*2</code> <code>print(Tuple2)</code> a) 20 b) (20,) c) (10,10) d) Error	
8	Fill in the blanks: The SQL keyword ----- is used in SQL expression to select records based on patterns	1
9	What possible outcome will be produced when the following code is executed? <pre> import random value=random.randint(0,3) fruit=["APPLE","ORANGE","MANGO","GRAPE"] for i in range(value): print(fruit[i],end='##') print() </pre> a) APPLE## b) APPLE# ORANGE## c) APPLE## ORANGE## d) ORANGE## MANGO## APPLE##	1
10	Select the network device from the following, which connects, networks with different protocols a) Bridge b) Gateway c) Hub d) Router	1
11	State whether the following statement is TRUE or FALSE : The value of the expression $4/3*(2-1)$ and $4/(3*(2-1))$ is the same	1
12	In the relational models , cardinality actually refers to ----- a) Number of tuples b) Number of attributes c) Number of tables d) Number of constraints	1
13	Data structure STACK is also known as ----- list a) First In First Out b) First In Last Out c) Last In First Out d) Last In Last Out	1
14	Which function is used to write a list of strings in a file? a) writeline() b) writelines() c) write() d) writeall()	1
15	Which of the following is NOT a guided communication medium? a) Twisted pair cable b) Microwave c) Coaxial cable d) Optical fibre	1
16	Which of the following function header is correct? a) <code>def fun(a=1,b):</code> b) <code>def fun(a=1,b,c=2):</code> c) <code>def fun(a=1,b=1,c=2):</code> d) <code>def fun(a=1,b=1,c=2,d):</code>	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A . (c) A is True but R is False	

	(d) A is false but R is True	
17	Assertion (A): In SQL, the aggregate function avg() calculates the average value on a set of values and produces a single result. Reason (R): The aggregate functions are used to perform some fundamental arithmetic tasks such as min(), max(), sum() etc	1
18	Assertion(A): Python overwrites an existing file or creates a non-existing file when we open a file with 'w' mode. Reason(R): a+ mode is used only for writing operations	1
SECTION - B		
19	i) Expand the following : a) SMTP b) VoIP ii) Give one disadvantage of Star topology OR i) What is a web browser ? ii) Define the term MAC Address	1+1=2
20	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . <pre> 30 = num for k in range(0,num) IF k%4==0 : print(k*4) Else: print(k+3) </pre>	2
21	Write a function letter_count(lst) that takes a list of string and returns a dictionary where the keys are the letters from lst and the values are the number of times that letter appears in the lst. For example: if the passed list, lst is : lst=list("apple") Then it should return a dictionary as {'a':1,'p':2,'l':1,'e':1} OR Write a function max_length(),that takes a list of string as argument and display the longest string from the list.	2
22	Predict the output of the following code: <pre> lst=[2,4,6,8,10] for i in range(1,5): lst[i-1]=lst[i] for i in range(0,5): print(lst[i],end=' ') </pre>	2
23	Consider the following list of elements and write Python statement to print the output of each question. elements=['apple',200,300,'red','blue','grapes'] i) print(elements[3:5]) ii) print(elements[::-1])	2

	OR Consider the following list exam and write Python statement for the following questions: exam=['english','physics','chemistry','cs','biology'] i) To insert subject "maths" as last element ii) To display the list in reverse alphabetical order	
24	Satheesh has created a database "school" and table "student". Now he wants to view all the databases present in his laptop. Help him to write SQL command for that , also to view the structure of the table he created. OR Meera got confused with DDL and DML commands. Help her to select only DML command from the given list of command. UPDATE , DROP TABLE, SELECT , CREATE TABLE , INSERT INTO, DELETE , USE	2
25	Predict the output for the following Python snippet <pre>def calc(p,q=3): ans=1 for x in range(q): ans=ans*p return ans power=calc(3) print(power,'9') power=calc(3,2) print(power,'27')</pre>	2
SECTION C		
26	Predict the output of the Python code given below: <pre>def calculate(str): text="" x=range(len(str)-1) for i in x: if str[i].isupper(): text+=str[i] elif str[i].islower(): text+=str[i+1] else: text+='@' return text start='Pre-board Exam' final=calculate(start) print(final)</pre>	3

27	Consider the following table DOCTOR given below and write the output of the SQL Queries that follows : <table><tr><th>D_ID</th><th>D_NAME</th><th>D_DEPT</th><th>GENDER</th><th>EXPERIENCE</th></tr><tr><td>101</td><td>JOSEPH</td><td>ENT</td><td>MALE</td><td>10</td></tr><tr><td>104</td><td>GUPTA</td><td>MEDICINE</td><td>MALE</td><td>12</td></tr><tr><td>106</td><td>SUMAN</td><td>ORTHO</td><td>FEMALE</td><td>7</td></tr><tr><td>111</td><td>HANEEF</td><td>ENT</td><td>MALE</td><td>12</td></tr><tr><td>123</td><td>DEEPTI</td><td>CARDIOLOGY</td><td>FEMALE</td><td>6</td></tr><tr><td>132</td><td>VEENA</td><td>SKIN</td><td>FEMALE</td><td>12</td></tr></table> i) SELECT D_NAME FROM DOCTOR WHERE GENDER=MALE AND EXPERIENCE=12 ; ii) SELECT DISTINCT(D_DEPT) FROM DOCTOR ; iii) SELECT D_NAME , EXPERIENCE FROM DOCTOR ORDER BY EXPERIENCE ;	D_ID	D_NAME	D_DEPT	GENDER	EXPERIENCE	101	JOSEPH	ENT	MALE	10	104	GUPTA	MEDICINE	MALE	12	106	SUMAN	ORTHO	FEMALE	7	111	HANEEF	ENT	MALE	12	123	DEEPTI	CARDIOLOGY	FEMALE	6	132	VEENA	SKIN	FEMALE	12	3																																																	
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123	DEEPTI	CARDIOLOGY	FEMALE	6																																																																																		
132	VEENA	SKIN	FEMALE	12																																																																																		
28	Write a function in Python to count the number of lines in a text file ‘EXAM.txt’ which start with an alphabet ‘T’ . OR Write a function in Python that count the number of “can” words present in a text file “DETAILS.txt” .	3																																																																																				
29	Consider the following Table “TEACHER” <table><tr><th>T_ID</th><th>NAME</th><th>AGE</th><th>SEX</th><th>DEPT</th><th>D_O_JOIN</th><th>SALARY</th></tr><tr><td>902</td><td>SANDEEP</td><td>45</td><td>M</td><td>COMPUTER</td><td>10/10/2002</td><td>56000</td></tr><tr><td>813</td><td>SANGEETA</td><td>34</td><td>F</td><td>HISTORY</td><td>24/9/2010</td><td>50000</td></tr><tr><td>771</td><td>JOEL</td><td>48</td><td>M</td><td>ENGLISH</td><td>4/5/2001</td><td>67900</td></tr><tr><td>703</td><td>MANVITH</td><td>36</td><td>M</td><td>MATHS</td><td>27/09/2012</td><td>48000</td></tr><tr><td>606</td><td>NEENA</td><td>32</td><td>F</td><td>ENGLISH</td><td>23/5/2013</td><td>40000</td></tr><tr><td>537</td><td>ABHILASH</td><td>42</td><td>M</td><td>MATHS</td><td>6/2/2006</td><td>47000</td></tr><tr><td>420</td><td>MUHSIN</td><td>49</td><td>M</td><td>ENGLISH</td><td>8/3/2003</td><td>70450</td></tr><tr><td>412</td><td>SUBESH</td><td>52</td><td>M</td><td>HINDI</td><td>10/11/1999</td><td>60500</td></tr><tr><td>345</td><td>RENJINI</td><td>36</td><td>F</td><td>COMPUTER</td><td>27/4/2010</td><td>45000</td></tr><tr><td>218</td><td>DEEPTI</td><td>28</td><td>F</td><td>HINDI</td><td>2/2/2016</td><td>40000</td></tr><tr><td>160</td><td>SHUBHAM</td><td>39</td><td>M</td><td>SCIENCE</td><td>19/9/2011</td><td>45000</td></tr></table> Based on the above table, Write SQL command for the following : i) To show all information about the teacher of maths department ii) To list name and department whose name starts with letter ‘M’ iii) To display all details of female teacher whose salary in between 35000 and 50000	T_ID	NAME	AGE	SEX	DEPT	D_O_JOIN	SALARY	902	SANDEEP	45	M	COMPUTER	10/10/2002	56000	813	SANGEETA	34	F	HISTORY	24/9/2010	50000	771	JOEL	48	M	ENGLISH	4/5/2001	67900	703	MANVITH	36	M	MATHS	27/09/2012	48000	606	NEENA	32	F	ENGLISH	23/5/2013	40000	537	ABHILASH	42	M	MATHS	6/2/2006	47000	420	MUHSIN	49	M	ENGLISH	8/3/2003	70450	412	SUBESH	52	M	HINDI	10/11/1999	60500	345	RENJINI	36	F	COMPUTER	27/4/2010	45000	218	DEEPTI	28	F	HINDI	2/2/2016	40000	160	SHUBHAM	39	M	SCIENCE	19/9/2011	45000	3
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30	Thushar received a message(string) that has upper case and lower-case alphabet. He want to extract all the upper case letters separately .Help him to do his task by performing the following user defined function in Python: a) Push the upper case alphabets in the string into a STACK b) Pop and display the content of the stack. For example: If the message is “All the Best for your Pre-board Examination” The output should be : E P B A	3
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SECTION D

31	Consider the table PRODUCT and CLIENT given below: <table><thead><tr><th colspan="5">PRODUCT</th></tr><tr><th>PR_ID</th><th>PR_NAME</th><th>MANUFACTURER</th><th>PRICE</th><th>QTY</th></tr></thead><tbody><tr><td>BS101</td><td>BATH SOAP</td><td>PEARSE</td><td>45.00</td><td>25</td></tr><tr><td>SP210</td><td>SHAMPOO</td><td>SUN SILK</td><td>320.00</td><td>10</td></tr><tr><td>SP235</td><td>SHAMPOO</td><td>DOVE</td><td>455.00</td><td>15</td></tr><tr><td>BS120</td><td>BATH SOAP</td><td>SANTOOR</td><td>36.00</td><td>10</td></tr><tr><td>TB310</td><td>TOOTH BRUSH</td><td>COLGATE</td><td>48.00</td><td>15</td></tr><tr><td>FW422</td><td>FACE WASH</td><td>DETOL</td><td>66.00</td><td>10</td></tr><tr><td>BS145</td><td>BATH SOAP</td><td>DOVE</td><td>38.00</td><td>20</td></tr></tbody></table> <table><thead><tr><th colspan="4">CLIENT</th></tr><tr><th>C_ID</th><th>C_NAME</th><th>CITY</th><th>PR_ID</th></tr></thead><tbody><tr><td>01</td><td>DREAM MART</td><td>COCHIN</td><td>BS101</td></tr><tr><td>02</td><td>SHOPRIX</td><td>DELHI</td><td>TB310</td></tr><tr><td>03</td><td>BIG BAZAR</td><td>DELHI</td><td>SP235</td></tr><tr><td>04</td><td>LIVE LIFE</td><td>CHENNAI</td><td>FW422</td></tr></tbody></table> Write SQL Queries for the following: i) Display the details of those clients whose city is DELHI ii) Increase the Price of all Bath soap by 10 iii) Display the details of Products having the highest price iv) Display the product name, price, client name and city with their corresponding matching product Id.	PRODUCT					PR_ID	PR_NAME	MANUFACTURER	PRICE	QTY	BS101	BATH SOAP	PEARSE	45.00	25	SP210	SHAMPOO	SUN SILK	320.00	10	SP235	SHAMPOO	DOVE	455.00	15	BS120	BATH SOAP	SANTOOR	36.00	10	TB310	TOOTH BRUSH	COLGATE	48.00	15	FW422	FACE WASH	DETOL	66.00	10	BS145	BATH SOAP	DOVE	38.00	20	CLIENT				C_ID	C_NAME	CITY	PR_ID	01	DREAM MART	COCHIN	BS101	02	SHOPRIX	DELHI	TB310	03	BIG BAZAR	DELHI	SP235	04	LIVE LIFE	CHENNAI	FW422	4
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FW422	FACE WASH	DETOL	66.00	10																																																																			
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C_ID	C_NAME	CITY	PR_ID																																																																				
01	DREAM MART	COCHIN	BS101																																																																				
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32	Gupta is writing a program to create a csv file “employee.csv” which will contain user name and password for department entries. He has written the following code . As a programmer, help him to successfully execute the given task. import -----#statement 1 def add_emp(username,password): f=open(‘employee.csv’, ‘-----‘) content=csv.writer(f) content.writerow([username,password]) f.close() def read_emp(): with open (‘employee.csv’,’r’) as file:	4																																																																					

	<pre> content_reader=csv.------(file) # statement 3 for row in content_reader: print(row[0],row[1]) file.close() add_emp('mohan','emp123#') add_emp('ravi','emp456#') read_emp() #statement 4 </pre> i) Name the module he should import in statement 1 ii) In which mode , Gupta should open the file to add record in to the file ? (statement 2) iii) Fill in the blank in statement 3 to read the record from a csv file iv) What output will he obtain while executing statement 4 ?	
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SECTION E

33

Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:

JUNIOR

SENIOR

ADMIN

HOSTEL

The distance between various building is as follows:

ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	150 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	350 m

Number of computer in each building is :

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

i)

Suggest the cable layout of connections between the buildings.

ii)

Suggest the most suitable place (i.e., building) to house the server of this college, provide a suitable reason.

iii)

Is there a requirement of a repeater in the given cable layout? Why/ Why not?

iv)

Suggest the placement of hub/switch with justification.

v)

The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following:

a.

Fiber optic cable

b.

Microwave

c.

Radiowave

5

34	i) What is Pickling or Serialization? ii) A binary file “salary.DAT” has structure [employee id, employee name, salary]. Write a function countrec() in Python that would read contents of the file “salary.DAT” and display the details of those employee whose salary is above 20000. OR i) What is the difference between ‘r’ and ‘rb’ mode in Python file ? ii) A binary file “STUDENT.DAT” has structure [admission_number, Name, Percentage]. Write a function countrec() in Python that would read contents of the file “STUDENT.DAT” and display the details of those students whose percentage is above 90. Also display number of students scoring above 90%	2+3=5
35	i) What do you mean by a Primary key in RDBMS ? ii) Complete the following database connectivity program by writing the missing statements and performing the given query <pre>import ----- as mysql # statement 1 con=mysql. -----(host='localhost',user='root',passwd='123' , database='student') # statement 2 cursor=con.cursor() cursor.execute(-----) # statement 3 data=cursor. ----- # statement 4 for rec in data: print(rec) con.close()</pre> a) Complete the statement 1 by writing the name of package need to be imported for database connectivity . b) Complete the statement 2 by writing the name of method require to create connection between Python and mysql. c) Complete the statement 3 by writing the query to display those students record whose mark is between 50 and 90 from table “student” d) Complete the statement 4 to retrieve all records from the result set. OR i) What is the difference between UNIQUE and PRIMARY KEY constraints ? ii) Maya has created a table named BOOK in MYSQL database, LIBRARY BNO(Book number)- integer B_name(Name of the book) - string Price (Price of one book) –integer Note the following to establish connectivity between Python and MySQL: Username – root, Password – writer, Host – localhost. Maya, now wants to display the records of books whose price is more than 250. Help Maya to write the program in Python	1+4=5

KENDRIYA VIDYALAYA SANGATHAN**ERNAKULAM REGION****1st PRE BOARD EXAMINATION 2023 – 24****COMPUTER SCIENCE (083)****Class: XII**

Time allowed: 3 Hours

Maximum Marks: 70

MARKING SCHEME

Q.NO	QUESTION	MARKS
SECTION - A		
1	Which of the following is a keyword in Python ? a) true b) For c) pre-board d) False	1
2	What will be the output for the following Python statement ? print(20//3*2+(35//7.0)) a) 17.0 b) 17 c) 8.5 d) 8	1
3	In MYSQL database, if a table, BOOK has degree 8 and cardinality 7, and another table, SALE has degree 4 and cardinality 7, what will be the degree and cardinality of the Cartesian product of BOOK and SALE ? b) 32 , 49 b) 12, 49 c) 12 ,14 d) 32,14	1
4	What is “ C “ stands in TCP/IP ? a) Common b) Centre c)Control d) Coordinate	1
5	What is printed by the following statements ? ANIMAL={"dog":10,"tiger":5,"elephant":15,"Cow":3} print("Tiger" not in ANIMAL) a) True b)False c)Error d) None	1
6	Consider the following statements and choose the correct output from the given options : EXAM="COMPUTER SCIENCE" print(EXAM[12:-2]) a) EN b) CI c)SCIENCE d) ENCE	1
7	What will be the output of the following code ? Tuple1=(10,) Tuple2=Tuple1*2 print(Tuple2)	1

	a) 20	b) (20,)	c) (10,10)	d) Error	
8	Fill in the blanks : The SQL keyword ----- is used in SQL expression to select records based on patterns LIKE				1
9	What possible outcome will be produced when the following code is executed ? <pre>import random value=random.randint(0,3) fruit=["APPLE","ORANGE","MANGO","GRAPE"] for i in range(value): print(fruit[i],end='##') print()</pre> a) APPLE## b) APPLE# ORANGE## c) APPLE## ORANGE## d) ORANGE## MANGO## APPLE##				1
10	Select the network device from the following ,which connects , networks with different protocols a) Bridge b) Gateway c)Hub d) Router				1
11	State whether the following statement is TRUE or FALSE : The value of the expression $4/3*(2-1)$ and $4/(3*(2-1))$ is the same TRUE				1
12	In the relational models , cardinality actually refers to ----- a) Number of tuples b) Number of attributes c) Number of tables d) Number of constraints				1
13	Data structure STACK is also known as ----- list a)First In First Out b) First In Last Out c) Last In First Out d) Last In Last Out				1
14	Which function is used to write a list of strings in a file ? a) Writeline() b) writelines() c) write() d) writeall()				1
15	Which of the following is NOT a guided communication medium ? a) Twisted pair cable b) Microwave c)Coaxial cable d) Optical fibre				1
16	Which of the following function headers is correct ? a) def fun(a=1,b): b) def fun(a=1,b,c=2): c) def fun(a=1,b=1,c=2): d) def fun(a=1,b=1,c=2,d):				1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A				

	(b) Both A and R are true and R is not the correct explanation for A . (c) A is True but R is False (d) A is false but R is True	
17	Assertion (A): In SQL, the aggregate function avg() calculates the average value on a set of values and produces a single result. Reason (R): The aggregate functions are used to perform some fundamental arithmetic tasks such as min(), max(), sum() etc (b) Both A and R are true and R is not the correct explanation for A .	1
18	Assertion(A): Python overwrites an existing file or creates a non-existing file when we open a file with 'w' mode. Reason(R): a+ mode is used only for writing operations (c) A is True but R is False	1
SECTION - B		
19	i) Expand the following : a) SMTP : Simple Mail Transfer Protocol b) VoIP : Voice Over Internet Protocol ii) Give one disadvantage of Star topology Star topology has a single point of failure. If the central hub or switch fails, the entire network will be down. This can be a major problem for networks that require high availability. Or any other disadvantage. OR i) What is a web browser ? A software application used to access information on the World Wide Web is called a Web Browser. When a user requests some information, the web browser fetches the data from a web server and then displays the webpage on the user's screen. ii) Define the term MAC Address A MAC address (media access control address) is a 12-digit hexadecimal number assigned to each device connected to the network. Primarily specified as a unique identifier during device manufacturing, the MAC address is often found on a device's network interface card (NIC).	1+1=2
20	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . <pre> num=30 for k in range(0,num): if k%4==0 : print(k*4) else: print(k+3) </pre>	½ mark each
21	Write a function letter_count(lst) that takes a list of string and returns a dictionary where the keys are the letters from lst and the values are the number of times that letter appears in the lst. For example: if the passed list is :	2

	Lst=list("apple") Then it should return a dictionary as {'a':1,'p':2,'l':1,'e':1} OR Write a function max_length(), that takes a list of string as argument and display the longest string from the list. Correct Program : 2 Marks	
22	Predict the output of the following code: <pre>lst=[2,4,6,8,10] for i in range(1,5): lst[i-1]=lst[i] for i in range(0,5): print(lst[i],end=' ')</pre> output: 4 6 8 10 10	2
23	Consider the following list of elements and write Python statement to print the output of each questions. <pre>elements=['apple',200,300,'red','blue','grapes']</pre> i) print(elements[3:5]) <pre>['red', 'blue']</pre> ii) print(elements[::-1]) <pre>['grapes', 'blue', 'red', 300, 200, 'apple']</pre> OR Consider the following list exam and write Python statement for the following questions: i) To insert subject "maths" as last element exam.append('maths') ii) To display the list in reverse alphabetical order exam.sort(reverse=True)	2
24	Satheesh has created a database "school" and table "student". Now he wants to view all the databases present in his laptop. Help him to write SQL command for that , also to view the structure of the table he created. SHOW DATABASES DESCRIBE/DESC student OR Meera got confused with DDL and DML commands. Help her to select only DML command from the given list of command.	2

	UPDATE , DROP TABLE, SELECT , CREATE TABLE , INSERT INTO, DELETE , USE DML: UPDATE,SELECT,INSERT INTO,DELETE	
25	Predict the out put for the following Python snippet <pre>def calc(p,q=3): ans=1 for x in range(q): ans=ans*p return ans power=calc(3) print(power,'9') power=calc(3,2) print(power,'27')</pre> OUTPUT: 27 9 9 27	2
SECTION C		
26	Predict the output of the Python code given below: <pre>def calculate(str): text="" x=range(len(str)-1) for i in x: if str[i].isupper(): text+=str[i] elif str[i].islower(): text+=str[i+1] else: text+='@' return text start='Pre-board Exam' final=calculate(start) print(final)</pre> OUTPUT: Pe-@oard @Eam	3

27	Consider the following table DOCTOR given below and write the out put of the SQL Queries that follows : <table border="1"><thead><tr><th>D_ID</th><th>D_NAME</th><th>D_DEPT</th><th>GENDER</th><th>EXPERIENCE</th></tr></thead><tbody><tr><td>101</td><td>JOSEPH</td><td>ENT</td><td>MALE</td><td>10</td></tr><tr><td>104</td><td>GUPTA</td><td>MEDICINE</td><td>MALE</td><td>12</td></tr><tr><td>106</td><td>SUMAN</td><td>ORTHO</td><td>FEMALE</td><td>7</td></tr><tr><td>111</td><td>HANEEF</td><td>ENT</td><td>MALE</td><td>12</td></tr><tr><td>123</td><td>DEEPTI</td><td>CARDIOLOGY</td><td>FEMALE</td><td>6</td></tr><tr><td>132</td><td>VEENA</td><td>SKIN</td><td>FEMALE</td><td>12</td></tr></tbody></table> i) SELECT D_NAME FROM DOCTOR WHERE GENDER=MALE AND EXPERIENCE=12 ; GUPTA HANEEF ii) SELECT DISTINCT(D_DEPT) FROM DOCTOR ; DISTINCT(D_DEPT) ENT MEDICINE ORTHO CARDIOLOGY SKIN iii) SELECT D_NAME , EXPERIENCE FROM DOCTOR ORDER BY EXPERIENCE; <table><thead><tr><th>D_NAME</th><th>EXPERIENCE</th></tr></thead><tbody><tr><td>DEEPTI</td><td>6</td></tr><tr><td>SUMAN</td><td>7</td></tr><tr><td>JOSEPH</td><td>10</td></tr><tr><td>GUPTA</td><td>12</td></tr><tr><td>HANEEF</td><td>12</td></tr><tr><td>VEENA</td><td>12</td></tr></tbody></table>	D_ID	D_NAME	D_DEPT	GENDER	EXPERIENCE	101	JOSEPH	ENT	MALE	10	104	GUPTA	MEDICINE	MALE	12	106	SUMAN	ORTHO	FEMALE	7	111	HANEEF	ENT	MALE	12	123	DEEPTI	CARDIOLOGY	FEMALE	6	132	VEENA	SKIN	FEMALE	12	D_NAME	EXPERIENCE	DEEPTI	6	SUMAN	7	JOSEPH	10	GUPTA	12	HANEEF	12	VEENA	12	3
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28	Write a function in Python to count the number of lines in a text fie ‘EXAM.txt’ which start with an alphabet ‘T’ . Correct function prototype ½ mark Correct opening text file statement ½ mark Correct logic 1 and ½ marks Closing the file ½ mark OR Write a function in Python that count the number of “can” words present in a text file “DETAILS.txt” . <pre>def count_word(): count=0</pre>	3																																																	

	<pre>f=open("textfiles.txt","r") contents=f.read() word=contents.split() for i in word: if i=='can': count+=1 print("Number of words in the File is :",count) f.close() count_word()</pre> Correct function prototype ½ mark Correct opening text file statement ½ mark Correct logic 1 and ½ marks Closing the file ½ mark																																																																																					
29	Consider the following Table “TEACHER” <table><tr><th>T_ID</th><th>NAME</th><th>AGE</th><th>SEX</th><th>DEPT</th><th>D_O_JOIN</th><th>SALARY</th></tr><tr><td>902</td><td>SANDEEP</td><td>45</td><td>M</td><td>COMPUTER</td><td>10/10/2002</td><td>56000</td></tr><tr><td>813</td><td>SANGEETA</td><td>34</td><td>F</td><td>HISTORY</td><td>24/9/2010</td><td>50000</td></tr><tr><td>771</td><td>JOEL</td><td>48</td><td>M</td><td>ENGLISH</td><td>4/5/2001</td><td>67900</td></tr><tr><td>703</td><td>MANVITH</td><td>36</td><td>M</td><td>MATHS</td><td>27/09/2012</td><td>48000</td></tr><tr><td>606</td><td>NEENA</td><td>32</td><td>F</td><td>ENGLISH</td><td>23/5/2013</td><td>40000</td></tr><tr><td>537</td><td>ABHILASH</td><td>42</td><td>M</td><td>MATHS</td><td>6/2/2006</td><td>47000</td></tr><tr><td>420</td><td>MUHSIN</td><td>49</td><td>M</td><td>ENGLISH</td><td>8/3/2003</td><td>70450</td></tr><tr><td>412</td><td>SUBESH</td><td>52</td><td>M</td><td>HINDI</td><td>10/11/1999</td><td>60500</td></tr><tr><td>345</td><td>RENJINI</td><td>36</td><td>F</td><td>COMPUTER</td><td>27/4/2010</td><td>45000</td></tr><tr><td>218</td><td>DEEPTI</td><td>28</td><td>F</td><td>HINDI</td><td>2/2/2016</td><td>40000</td></tr><tr><td>160</td><td>SHUBHAM</td><td>39</td><td>M</td><td>SCIENCE</td><td>19/9/2011</td><td>45000</td></tr></table> Based on the above table , Write SQL command for the following : i) To show all information about the teacher of maths department SELECT * FROM TEACHER WHERE DEPT='MATHS'; ii) To list name and department whose name starts with letter ‘M’ SELECT NAME,DEPT FROM TEACHER WHERE NAME LIKE ‘M%’; iii) To display all details of female teacher whose salary in between 35000 and 50000 SELECT * FROM TEACHER WHERE SEX='F' AND SALARY BETWEEN 35000 AND 50000 ;	T_ID	NAME	AGE	SEX	DEPT	D_O_JOIN	SALARY	902	SANDEEP	45	M	COMPUTER	10/10/2002	56000	813	SANGEETA	34	F	HISTORY	24/9/2010	50000	771	JOEL	48	M	ENGLISH	4/5/2001	67900	703	MANVITH	36	M	MATHS	27/09/2012	48000	606	NEENA	32	F	ENGLISH	23/5/2013	40000	537	ABHILASH	42	M	MATHS	6/2/2006	47000	420	MUHSIN	49	M	ENGLISH	8/3/2003	70450	412	SUBESH	52	M	HINDI	10/11/1999	60500	345	RENJINI	36	F	COMPUTER	27/4/2010	45000	218	DEEPTI	28	F	HINDI	2/2/2016	40000	160	SHUBHAM	39	M	SCIENCE	19/9/2011	45000	1MARK EACH
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30	Thushar received a message(string) that has upper case and lower case alphabet.He want to extract all the upper case letters separately .Help him to do his task by performing the following user defined function in Python:	1 mark for push (), 1 mark																																																																																				

	a) Push the upper case alphabets in the string into a STACK b) Pop and display the content of the stack. For example: If the message is “All the Best for your Pre-board Examination” The output should be: E P B A Ans: def push(s,ch): s.append(ch) def pop(s): if s!=[]: return s.pop() else: return None string=“All the Best for your Pre-board Examination” st=[] for ch in string: if ch.isupper(): push(st,ch) while True: item=pop(st) if item!=None: print(item,end= ‘ ‘) else: break	for pop() and 1 mark for displaying
--	---	--

SECTION D

31

Consider the table PRODUCT and CLIENT given below:

PR_ID	PR_NAME	MANUFACTURER	PRICE	QTY
BS101	BATH SOAP	PEARSE	45.00	25
SP210	SHAMPOO	SUN SILK	320.00	10
SP235	SHAMPOO	DOVE	455.00	15
BS120	BATH SOAP	SANTOOR	36.00	10
TB310	TOOTH BRUSH	COLGATE	48.00	15
FW422	FACE WASH	DETOL	66.00	10
BS145	BATH SOAP	DOVE	38.00	20

PRODUCT

C_ID	C_NAME	CITY	PR_ID
01	DREAM MART	COCHIN	BS101
02	SHOPRIX	DELHI	TB310
03	BIG BAZAR	DELHI	SP235
04	LIVE LIFE	CHENNAI	FW422

1 mark each

	Write SQL Queries for the following : i) Display the details of those clients whose city is DELHI SELECT * FROM CLIENT WHERE CITY='DELHI'; ii) Increase the Price of all Bath soap by 10 UPDATE PRODUCT SET PRICE=PRICE+10 WHERE PR_NAME='BATH SOAP'; iii) Display the details of Products having the highest price SELECT * FROM PRODUCT WHERE PRICE=(SELECT MAX(PRICE) FROM PRODUCT) ; iv) Display the product name , price, client name and city with their corresponding matching product Id . SELECT PR_NAME , PRICE ,C_ID, CITY FROM PRODUCT , CLIENT WHERE PRODUCT.PR_ID=CLIENT.PR_ID ;	
32	Gupta is writing a program to create a csv file “employee.csv” which will contain user name and password for department entries. He has written the following code. As a programmer, help him to successfully execute the given task. <pre> import ----- #statement 1 def add_emp(username,password): f=open('employee.csv', '-----') # statement 2 content=csv.writer(f) content.writerow([username,password]) f.close() def read_emp(): with open ('employee.csv','r') as file: content_reader=csv.-----(file) # statement 3 for row in content_reader: print(row[0],row[1]) file.close() add_emp('mohan','emp123#') add_emp('ravi','emp456#') read_emp() #statement 4 </pre> i) Name the module he should import in statement 1 import csv ii) In which mode , Gupta should open the file to add record in to the file ? (statement 2) Mode a iii) Fill in the blank in statement 3 to read the record from a csv file reader iv) What output will he obtain while executing statement 4 ? mohan emp123# ravi emp456#	4

SECTION E

33

Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:



The distance between various building is as follows:

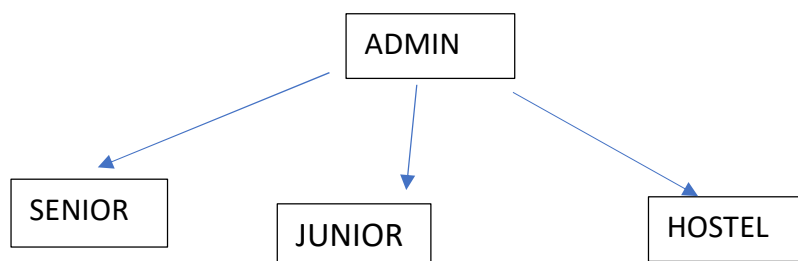
ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	150 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	350 m

Number of computer in each building is :

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

1 mark
each

- i) Suggest the cable layout of connections between the buildings.



- ii) Suggest the most suitable place (i.e., building) to house the server of this college , provide a suitable reason.

ADMIN, as number of computers are more in ADMIN building

	iii) Is there a requirement of a repeater in the given cable layout? Why/ Why not? Yes, between ADMIN TO JUNIOR and ADMIN TO SENIOR distance is more than 100 m. iv) Suggest the placement of hub/switch with justification. In all building as it is required to connect all computers in to a network. v) The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following : - Fiber optic cable - Microwave - Radiowave Radio wave	
34	i) What is Pickling or Serialization? The process of converting Python object hierarchy into byte stream so that it can be written into a file. ii) A binary file “salary.DAT” has structure [employee id, employee name, salary]. Write a function countrec() in Python that would read contents of the file “salary.DAT” and display the details of those employee whose salary is above 20000. <pre>def countrec(): num=0 fobj=open("salary.dat",'rb') try: while True: rec=pickle.load(fobj) if rec[2]> 20000: print(rec[0],rec[1],rec[2]) except: fobj.close()</pre> OR i) What is the difference between ‘r’ and ‘rb’ mode in Python file ? r is used to read text files and rb is used to read binary files ii) A binary file “STUDENT.DAT” has structure [admission_number, Name, Percentage]. Write a function countrec() in Python that would read contents of the file “STUDENT.DAT” and display the details of those students whose percentage is above 90. Also display number of students scoring above 90% <pre>import pickle def countrec(): fobj=open('student.dat','rb') num=0 try:</pre>	2+3=5

	<pre> while True: rec=pickle.load(fobj) if rec[2]>90: num=num+1 print(re[0],rec[1],rec[2]) except: fobj.close() return num </pre>	
35	i) What do you mean by a Primary key in RDBMS ? In the relational model of databases, a primary key is a specific choice of a minimal set of attributes that uniquely specify a tuple in a relation. ii) Complete the following database connectivity program by writing the missing statements and performing the given query <pre> import ----- as mysql # statement 1 con=mysql. -----(host='localhost',user='root',passwd='123' , database='student') # statement 2 cursor=con.cursor() cursor.execute(-----) # statement 3 data=cursor. ----- # statement 4 for rec in data: print(rec) con.close() </pre> i) Complete the statement 1 by writing the name of package need to be imported for database connectivity . mysql.connector ii) Complete the statement 2 by writing the name of method require to create connection between Python and mysql. connect() iii) Complete the statement 3 by writing the query to display those students record whose mark is between 50 and 90 from table “student” select * from student where mark between 50 and 90 iv) Complete the statement 4 to retrieve all records from the result set. cursor.fetchall() OR i) What is the difference between UNIQUE and PRIMARY KEY constraints ? The difference between a UNIQUE constraint and a Primary Key is that per table may only have one Primary Key but may define more than one UNIQUE constraints	1+4=5

	ii) Maya has created a table named BOOKt in MYSQL database, LIBRARY BNO(Book number)- integer B_name(Name of the book) - string Price (Price of one book) –integer Note the following to establish connectivity between Python and MySQL: Username - root Password - writer Host – localhost Maya, now wants to display the records of books whose price is more than 250. Help Maya to write the program in Python 1 mark each for creating connection object, Creating cursor, Writing sql command	
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केंद्रीय विद्यालय संगठन, जयपुर संभाग
Kendriya Vidyalaya Sangathan, Jaipur Region
प्रथम प्री-बोर्ड परीक्षा 2023-24

First Pre-Board Exam 2023-24

कक्षा/Class: XII

विषय/Subject : Computer Science (083)

समय : 3 घंटे

पूर्णांक/Max Marks: 70

सामान्य निर्देश / General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.

खंड / SECTION-A		
प्रश्न सं Q. No.	प्रश्न / Question	अंक / Marks
1.	State True or False "break keyword skips remaining part of an iteration in a loop and compiler goes to starting of the loop and executes again"	1
2.	Find the valid keyword from the following? a) Student-Name b) False c) 3rdName d) P_no	1
3.	What will be the output for the following Python statement? X={'Sunil':190, 'Raju':10, 'Karambir':72, 'Jeevan':115} print('Jeevan' in X, 190 in X, sep="#") (a) True#False (b) True#True (c) False#True (d) False#False	1
4.	Consider the given expression: True and False or not True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (b) (c) NONE (d) NULL	1
5.	Select the correct output of the code: a = "Python! is amazing!" a = a.split('!') b = a[0] + "." + a[1] + "." + a[2] print (b) (a) Python!. is amazing!. (b) Python. is amazing. (c) Python. ! is amazing.! (d) will show error	1
6.	Which of the following mode in file opening statement overwrite the existing content? (a) a+ (b) r+ (c) w+ (d) None of the above	1
7.	The attribute which have properties to be as referential key is known as. (a) foreign key (b) alternate key (c) candidate key (d) Both (a) and (c)	1
8.	Which command is used to change some values in existing rows? (a) CHANGE (b) MODIFY (b) (c) ALTER (d) UPDATE	1

9.	Which of the following statement(s) would give an error after executing the following code? Q="Humanity is the best quality" # Statement1 print(Q) # Statement2 Q="Indeed." # Statement3 Q[0]='#' # Statement4 Q=Q+"It is." # Statement5 (a) Statement 3 (b) Statement 4 (c)Statement 5 (d)Statement 4 and 5	1
10.	p=150 def fn(q): _____ #missing statement p=p+q fn(50) print(p) Which of the following statements should be given in the blank for #missing statement if the output produced is 200 (a) global p=150 (b) global p (c) p=150 (d) global q	1
11.	Which function is used to split a line of string in list of words? (a)split() (b) splt() (c) split_line() (d) all of these	1
12.	What possible output(s) will be obtained when the following code is executed import random k=random.randint(1,3) fruits=['mango', 'banana', 'grapes', 'water melon', 'papaya'] for j in range(k): print(j, end="*") (a) mango*banana*grapes (b) banana*grapes (c) banana*grapes*watermelon (d) mango*grapes*papaya	1
13.	Fill in the blank: _____is a communication protocol responsible for sending emails. (a) TCP (b) SMTP (c) PPP (d)HTTP	1
14.	What will be the ouput when following expression be evaluated in Python? print(21.5 // 4 + (8 + 3.0)) (a) 16 (b)14.0 (c) 15 (d) 15.5	1
15.	Which of the following functions other than close() writes the buffer data to file (a) push() (b) write() (c) writeBuffer() (d) flush()	1
16.	To get counting of the returned rows, you may use..... (a) cursor.rowcount (b) cursor.count (c) cursor.countrecords() (d) cursor.manyrecords()	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A):- If the arguments in function call statement are provided in the format parameter=argument, it is called keyword arguments. Reasoning (R):- During a function call, the argument list first contain keyword argument(s) followed by positional argument(s).	1
18.	Assertion (A): CSV (Comma Separated Values) is a file format for data storage with one record on each line and each field is separated by comma. Reason (R): The format is used to share data between cross platform as text editors are	1

खंड / SECTION-C

26.

(a) Consider the following tables – Employee and Office:

Table: Emp

Emp_Id	Name	Salary
E01	Lakshya	54000
E02	Ravi	NULL
E03	Neeraj	32000
E04	Brijesh	42000

Table: dept

Emp_Id	Dept	DOJ
E01	Computer	05-SEP-2007
E02	Physics	05-JAN-2008
E03	Sports	30-DEC-2000
E04	English	05-SEP-2012

What will be the output of the following statement?

SELECT Name, Dept FROM Emp E, dept d WHERE E.Emp_Id=d.Emp_Id;

(b) Consider the following tables SCHOOL and ADMIN. Give the output the following SQL queries:

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

i. SELECT Designation, COUNT (*) FROM Admin GROUP BY Designation HAVING COUNT (*) <2;

ii. SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER DESC;

1+2

27.

Write a method **beginA()** in Python to read lines from a text file Notebook.TXT, and display those lines, which are starting with ‘A’.

For example If the file content is as follows:

An apple a day keeps the doctor away.

We all pray for everyone’s safety.

A marked difference will come in our country.

The **beginA()** function should display the output as:

An apple a day keeps the doctor away.

A marked difference will come in our country.

OR

A text file “PYTHON.TXT” contains alphanumeric text. Write a program that reads this

3

	text file and writes to another file "PYTHON1.TXT" entire file except the numbers or digits in the file.																																																																																																																																																											
28.	(a) Write the outputs of the SQL queries (i) to (iv) based on the relations CLUB and STUDENT given below: Table : CLUB <table><tr><th>COACHID</th><th>CNAME</th><th>AGE</th><th>SPORTS</th><th>DATEOFAPP</th><th>PAY</th><th>GENDER</th></tr><tr><td>1</td><td>KUKREJA</td><td>35</td><td>KARATE</td><td>27/03/1996</td><td>1000</td><td>M</td></tr><tr><td>2</td><td>RAVINA</td><td>34</td><td>KARATE</td><td>20/01/1998</td><td>1200</td><td>F</td></tr><tr><td>3</td><td>KARAN</td><td>34</td><td>SQUASH</td><td>19/02/1998</td><td>2000</td><td>M</td></tr><tr><td>4</td><td>TARUN</td><td>33</td><td>BASKETBALL</td><td>01/01/1998</td><td>1500</td><td>M</td></tr><tr><td>5</td><td>ZUBIN</td><td>36</td><td>SWIMMING</td><td>12/01/1998</td><td>750</td><td>M</td></tr><tr><td>6</td><td>KATAKI</td><td>36</td><td>SWIMMING</td><td>24/02/1998</td><td>800</td><td>F</td></tr><tr><td>7</td><td>ANKITA</td><td>39</td><td>SQUASH</td><td>20/02/1998</td><td>2200</td><td>F</td></tr><tr><td>8</td><td>ZAREEN</td><td>37</td><td>KARATE</td><td>22/02/1998</td><td>1100</td><td>F</td></tr><tr><td>9</td><td>KUSH</td><td>41</td><td>SWIMMING</td><td>13/01/1998</td><td>900</td><td>M</td></tr><tr><td>10</td><td>SHAILYA</td><td>37</td><td>BASKETBALL</td><td>19/02/1998</td><td>1700</td><td>M</td></tr></table> Table : STUDENT <table><tr><th>COACHID</th><th>SNAME</th><th>STIPEND</th><th>STREAM</th><th>MARKS</th><th>GRADE</th><th>CLASS</th></tr><tr><td>1</td><td>KARAN</td><td>400.00</td><td>MEDICAL</td><td>78.5</td><td>B</td><td>12B</td></tr><tr><td>12</td><td>VINNET</td><td>450.00</td><td>COMMERCE</td><td>89.2</td><td>A</td><td>11C</td></tr><tr><td>13</td><td>VIVEK</td><td>300.00</td><td>COMMERCE</td><td>68.6</td><td>C</td><td>12C</td></tr><tr><td>4</td><td>DHRUV</td><td>350.00</td><td>HUMANITIES</td><td>73.1</td><td>B</td><td>12C</td></tr><tr><td>15</td><td>MOHIT</td><td>500.00</td><td>NONMEDICAL</td><td>90.6</td><td>A</td><td>11A</td></tr><tr><td>6</td><td>ANUJ</td><td>400.00</td><td>MEDICAL</td><td>75.4</td><td>B</td><td>12B</td></tr><tr><td>17</td><td>ABHAY</td><td>250.00</td><td>HUMANITIES</td><td>64.4</td><td>C</td><td>11A</td></tr><tr><td>18</td><td>PAYAL</td><td>450.00</td><td>NONMEDICAL</td><td>88.5</td><td>A</td><td>12A</td></tr><tr><td>19</td><td>DIKSHA</td><td>500.00</td><td>NONMEDICAL</td><td>92.0</td><td>A</td><td>12A</td></tr><tr><td>10</td><td>RISHIKA</td><td>300.00</td><td>COMMERCE</td><td>67.5</td><td>C</td><td>12C</td></tr></table> i) SELECT SPORTS, MIN(PAY) FROM Club Group by SPORTS ; ii) SELECT MAX(DATEOFAPP), MIN(DATEOFAPP) FROM CLUB; iii) SELECT CNAME, PAY, C.COACHID, SPORTS FROM CLUB C, STUDENT S WHERE C.COACHID =S.COACHID AND PAY>=1500; iv) SELECT SName, CNAME FROM Student S, CLUB C WHERE Gender ='F' AND C.COACHID=S.COACHID; (b) Write SQL command to list all databases.	COACHID	CNAME	AGE	SPORTS	DATEOFAPP	PAY	GENDER	1	KUKREJA	35	KARATE	27/03/1996	1000	M	2	RAVINA	34	KARATE	20/01/1998	1200	F	3	KARAN	34	SQUASH	19/02/1998	2000	M	4	TARUN	33	BASKETBALL	01/01/1998	1500	M	5	ZUBIN	36	SWIMMING	12/01/1998	750	M	6	KATAKI	36	SWIMMING	24/02/1998	800	F	7	ANKITA	39	SQUASH	20/02/1998	2200	F	8	ZAREEN	37	KARATE	22/02/1998	1100	F	9	KUSH	41	SWIMMING	13/01/1998	900	M	10	SHAILYA	37	BASKETBALL	19/02/1998	1700	M	COACHID	SNAME	STIPEND	STREAM	MARKS	GRADE	CLASS	1	KARAN	400.00	MEDICAL	78.5	B	12B	12	VINNET	450.00	COMMERCE	89.2	A	11C	13	VIVEK	300.00	COMMERCE	68.6	C	12C	4	DHRUV	350.00	HUMANITIES	73.1	B	12C	15	MOHIT	500.00	NONMEDICAL	90.6	A	11A	6	ANUJ	400.00	MEDICAL	75.4	B	12B	17	ABHAY	250.00	HUMANITIES	64.4	C	11A	18	PAYAL	450.00	NONMEDICAL	88.5	A	12A	19	DIKSHA	500.00	NONMEDICAL	92.0	A	12A	10	RISHIKA	300.00	COMMERCE	67.5	C	12C	3
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29.	Write a function shiftn(L,n), where L is a list of integers and n is an integer. The function should return a list after shifting n number of elements to the left. Example: If the list initially contains [2, 15, 3, 14, 7, 9, 19, 6, 1, 10] and n=2 then function should return [3, 14, 7, 9, 19, 6, 1, 10, 2, 15] If the list initially contains [2, 15, 3, 14, 7, 9, 19, 6, 1, 10] and n=4 then function should return [7, 9, 19, 6, 1, 10, 2, 15, 3, 14]	3																																																																																																																																																										
30.	A nested list contains the data of visitors in a museum. Each of the inner lists contains the following data of a visitor: [V_no (int), Date (string), Name (string), Gender (String M/F), Age (int)] Write the following user defined functions to perform given operations on the stack named "status": (i) Push_element(Visitors) - To Push an object containing Gender of visitor who are in the age range of 15 to 20. (ii) Pop_element() - To Pop the objects from the stack and count and display the number of Male and Female entries in the stack. Also, display "Done" when there are no elements in the stack. For example: If the list of Visitors contains:	3																																																																																																																																																										

	<pre> [['305', "10/11/2022", "Geeta","F", 35], ['306', "10/11/2022", "Arham","M", 15], ['307', "11/11/2022", "David","M", 18], ['308', "11/11/2022", "Madhuri","F", 17], ['309', "11/11/2022", "Sikandar","M", 13]] </pre> The stack should contain F M M The output should be: Female: 1 Male: 2 Done OR Write a function in Python, Push(EventDetails) where , EventDetails is a dictionary containing the number of persons attending the events- {EventName : NumberOfPersons}. The function should push the names of those events in the stack named 'BigEvents' which have number of persons greater than 200. Also display the count of elements pushed on to the stack. For example: If the dictionary contains the following data: EventDetails ={"Marriage":300, "Graduation Party":1500, "Birthday Party":80, "Get together" :150} The stack should contain: Marriage Graduation Party The output should be: The count of elements in the stack is 2	
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खंड / SECTION-D

31.

Ripunjay is planning to connect its Delhi Campus with its head office at Goregaon. Its Delhi Campus is spread across an area of approx. 1 square kilometers consisting of 3 blocks. HR, Acad and Adm. You as a network expert have to suggest answers to the five queries (i) to (v) raised by them.

Goregaon Office

Delhi Campus

HR

Finance

Adm

Acad

Shortest distances between various blocks

HR to Adm	120m
HR to Acad	75m
Acad to Adm	130m
HR to Finance	70m
Finance to Adm	90m
Goregaon to Delhi Campus	50 km

Number of computers installed at various blocks

Block	Number of Computers
-------	---------------------

5*1

	HR 250 Adm 30 Acad 70 Finance 20 Goregaon 20 (i) Suggest the most suitable block in the Delhi Campus to host the server. Give a suitable reason with your suggestion. (ii) Suggest the cable layout among the various blocks within the Delhi Campus for connecting the blocks. (iii) Suggest the placement of the following devices with appropriate reasons: a. Switch / Hub b. Repeater (iv) Suggest a protocol that shall be needed to provide Video Conferencing solution between Goregaon Office and Delhi campus. (v) Suggest the type of network to connect Goregaon Office and Delhi campus.	
32.	(a) Write the output of the code given below: <pre> a=5 def add(b=2): global a a=a+b print(a,'#',b) return a b=add(a) print(a,'#',b) b=add(b) print(a,'#',b) </pre> (b) The code given below inserts the following record in the table Employee: EmpNo – integer Name – string Department – string Salary – integer Note the following to establish connectivity between Python and MYSQL: ▪ Username is root ▪ Password is brick ▪ The table exists in a MYSQL database named organization. ▪ The details (EmpNo, Name, Department and Salary) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to form the cursor object Statement 2 – to execute the command that inserts the record in the table Student. Statement 3- to add the record permanently in the database <pre> import mysql.connector as mysqldef sql_data(): con=mysql.connect(host="localhost",user="root",password="brick", database="organization") mycursor=_____ #Statement 1 eno=int(input("Enter Employee number :: ")) name=input("Enter Name :: ") dept=input("Enter Department name :: ") sal=int(input("Enter Salary :: ")) </pre>	2+3

	<pre> query="insert into student values({},'{}',{},{})".format(eno,name,dept,sal) _____ _____ #Statement 2 # Statement 3 print("Data Added successfully") OR (a) Predict the output of the code given below: a="Give me a glass of water!" n =len(a) b="" for i in range(0, n): if a[i] >= 'a' and a[i] <= 'k': b = b + a[i].upper() elif (a[i] >= 'l' and a[i] <= 'z'): b = b + a[i-1] elif a[i].isupper(): b = b + a[i].lower() else: b = b + '#' print(b) (a) The code given below reads the following record from the table named items and displays only those records who have price greater than 100: ItemNo –integer Name – string Price – integer Note the following to establish connectivity between Python andMySQL: • Username is root • Password is epic • The table exists in a MySQL database named store. Write the following missing statements to complete the code: Statement 1 – to form the cursor object Statement 2 – to execute the query that extracts records of items with price greater than 100. Statement 3 - to read the complete result of the query (records whose marks are greater than 75) into the object named data, from thetable studentin the database. import mysql.connector as mysqlcon def sql_data(): con=mysqlcon.connect(host="localhost",user="root",password="epic", database="store") mycursor=_____#Statement1 print("Items with price greater than 100 are :") _____#Statement2 data=_____#Statement3 for i in data: print(i) </pre>	
33.	a. What is the advantage of using a csv file for permanent storage? b. Write a python program to create a csv file dvd.csv and write 10 records in it Dvdid, dvd_name, qty, price.Display those dvd details whose dvd price is more than 25. OR a Write difference between a binary file and a csv file.	2+3

	b. Write a Program in Python that defines and calls the following user defined functions: (i) add() – To accept and add data of an employee to a CSV file ‘empdata.csv’. Each record consists of a list with field elements as eid, ename and salary to store empid, emp name and emp salary respectively. (ii) search()- To display the records of the emp whose salary is more than 10000.																																					
खंड / SECTION-E																																						
34.	Mubarak creates a table Items with a set of records to maintain the details of items. After creation of the table, he has entered data of 5 items in the table. Table: items <table><tr><th>ItemNo</th><th>Item</th><th>Scode</th><th>Qty</th><th>Rate</th><th>LastBuy</th></tr><tr><td>2005</td><td>Sharpener Classic</td><td>23</td><td>60</td><td>8</td><td>31-JUN-09</td></tr><tr><td>2003</td><td>Balls</td><td>22</td><td>50</td><td>25</td><td>01-FEB-10</td></tr><tr><td>2002</td><td>Gel Pen Premium</td><td>21</td><td>150</td><td>12</td><td>24-FEB-10</td></tr><tr><td>2006</td><td>Gel Pen Classic</td><td>21</td><td>250</td><td>20</td><td>11-MAR-09</td></tr><tr><td>2001</td><td>Eraser Small</td><td>22</td><td>220</td><td>6</td><td>19-JAN-09</td></tr></table> Based on the data given above answer the following questions: (i) Identify the most appropriate column, which can be considered as Primary key. (ii) If 3 columns are added and 2 rows are deleted from the table , what will be the new degree and cardinality of the above table? (iii) Write the statements to: a. Insert the following record into the table as (2024, Point Pen, 20, 11, 350, 15-NOV-2022). b. Increase the rate of the items by 2% whose name ends with ‘c’. OR (Option for part iii only) (iii) Write the statements to: a. Delete the record of items having rate greater than equal to 10. b. Add a column REMARKS in the table with datatype as varchar with 50 characters	ItemNo	Item	Scode	Qty	Rate	LastBuy	2005	Sharpener Classic	23	60	8	31-JUN-09	2003	Balls	22	50	25	01-FEB-10	2002	Gel Pen Premium	21	150	12	24-FEB-10	2006	Gel Pen Classic	21	250	20	11-MAR-09	2001	Eraser Small	22	220	6	19-JAN-09	1+1+2
ItemNo	Item	Scode	Qty	Rate	LastBuy																																	
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2003	Balls	22	50	25	01-FEB-10																																	
2002	Gel Pen Premium	21	150	12	24-FEB-10																																	
2006	Gel Pen Classic	21	250	20	11-MAR-09																																	
2001	Eraser Small	22	220	6	19-JAN-09																																	
35.	Anamika is a Python programmer. She has written a code and created a binary file data.dat with sid, sname and marks. The file contains 10 records. She now has to update a record based on the sid entered by the user and update the marks. The updated record is then to be written in the file extra.dat. The records which are not to be updated also have to be written to the file extra.dat. If the sid is not found, an appropriate message should to be displayed. As a Python expert, help him to complete the following code based on requirement given above: <pre>import def update_data(): rec={} fin=open("data.dat","rb") fout=open("_____") found=False eid=int(input("Enter student id to update their marks :: ")) while True: try: rec=_____ if rec["student id"]==sid: found=True rec["marks"]=int(input("Enter new marks:: ")) pickle._____ except:</pre> #Statement 1 #Statement 2 #Statement 3 #Statement 4																																					

	<pre> except: break if found==True: print("The marks of student id ",sid," has been updated.") else: print("No student with such id is not found") fin.close() fout.close() </pre> (i) Which module should be imported in the program? (Statement1) (ii) Write the correct statement required to open a temporary file named extra.dat. (Statement 2) (iii) Which statement should Anamika fill in Statement 3 to read the data from the binary file, data.dat and in Statement 4 to write the updated data in the file, extra.dat?	
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KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION

I-Pre Board Examination 2023-24

Class-12 Subject: Computer Science (083)

Answer Key

SECTION-A		
QN.	Answer of Question	
1.	False	1
2.	False	1
3.	True#False	1
4.	False	1
5.	(b)Python. is amazing.	1
6.	(c) w+	1
7.	(a) foreign key	1
8.	(d) UPDATE	1
9.	(b) Statement 4	1
10	(b) global p	1
11	(a) split()	1
12	(a) mango*banana*grapes	1
13	(b) SMTP	1
14	Ans. (a) 16	1
15	(d) flush()	1
16	(a) cursor.rowcount	1
17	Ans. (c) A is True but R is False	1
18	Ans: (a) Both A and R are true and R is the correct explanation for A	1
SECTION-B		
19.	<pre>Num=int(input("Number greater than 10 :")) sum=0 for i in range(10,Num,3): Sum+=1 if i%2==0: print(i*2) else: __print(i*3) print(Sum)</pre>	2
20.	1 mark for any correct advantage and disadvantage each OR Hyper Text Markup Language. Yes it has pre defined tags.	2
21.	(a) Ans: riya riya (b) dict_keys(['empname', 'address', 'salary'])	1 1
22.	Ans. GROUP BY clause is used to get the summary data based on one or more groups. The groups can be formed on one or more columns. For example, the GROUP BY query will be used to count the number of employees in each department, or to get the department wise total salaries. SELECT COUNT(ENAME), SUM(SALARY), DEPT FROM EMPLOYEES GROUP BY DEPT;	2
23.	(i) Post office Protocol 3 (ii) Voice over Internet Protocol (b) Ans: Registered Jack-45 is used as connector to connect ethernet cable to ethernet Port in the CPU	2

24.	Ans: 20000 # 100.0 100.0 \$ 200 2000 # 200.0 100.0 \$ 200.0 1000.0 # 100.0 100.0 \$ 200.0 OR Ans: (‘Python’) 6 3	2										
25.	Ans. Where” clause is used to filter the records from a table that is based on a specified condition, then the “Having” clause is used to filter the record from the groups based on the specified condition. OR Ans. Aggregate function are group functions which works on group of rows. Examples are sum(), min(), max(), avg(), count() etc.	2										
SECTION-C												
26.	a) <table><tr><td>Name</td><td>Dept</td></tr><tr><td>Lakshya</td><td>Computer</td></tr><tr><td>Ravi</td><td>Physics</td></tr><tr><td>Neeraj</td><td>Sports</td></tr><tr><td>Brijesh</td><td>English</td></tr></table> b) (i) Vice principal 1 (ii) YASHRAJ UMESH	Name	Dept	Lakshya	Computer	Ravi	Physics	Neeraj	Sports	Brijesh	English	1+2
Name	Dept											
Lakshya	Computer											
Ravi	Physics											
Neeraj	Sports											
Brijesh	English											
27.	Ans: <pre>def beginA(): f=open('Notebook.TXT') l=f.readlines() for i in l: if i[0]=='A' or i[0]='a': #or if i[0] in ["A","a"] print(i) f.close()</pre> OR <pre>fr=open("PYTHON.TXT") fw=open("PYTHON1.TXT", 'w') d=fr.read() for i in d: if not i.isdigit(): fw.write(i) fr.close() fw.close()</pre>	3										

	½ marks each for correct piece of code																	
28.	Ans. (a) i) Give 1 mark each correct output SPORTS MIN(PAY) Karate 1000 Squash 2000 Basketball 1500 Swimming 750 ii) Give 1 mark each correct output <u>MAX(EOFAPP), MIN(EOFAPP)</u> 24/02/1998 27/03/1996 iii) Give 1 mark each correct output <table><tr><td><u>CNAME</u></td><td><u>PAY</u></td><td><u>C.COACHID</u></td><td><u>SPORTS</u></td></tr><tr><td>TARUN</td><td>1500</td><td>4</td><td>BASKETBALL</td></tr><tr><td>SHAILYA</td><td>1700</td><td>10</td><td>BASKETBALL</td></tr></table> iv) Give 1 mark each correct output <table><tr><td><u>SNAME</u></td><td><u>CNAME</u></td></tr><tr><td>ANUJ</td><td>KATAKI</td></tr></table> b) Show databases;	<u>CNAME</u>	<u>PAY</u>	<u>C.COACHID</u>	<u>SPORTS</u>	TARUN	1500	4	BASKETBALL	SHAILYA	1700	10	BASKETBALL	<u>SNAME</u>	<u>CNAME</u>	ANUJ	KATAKI	3
<u>CNAME</u>	<u>PAY</u>	<u>C.COACHID</u>	<u>SPORTS</u>															
TARUN	1500	4	BASKETBALL															
SHAILYA	1700	10	BASKETBALL															
<u>SNAME</u>	<u>CNAME</u>																	
ANUJ	KATAKI																	
29.	def shiftn(L,n): return L[n:]+L[:n]	3																
30.	visitors=[['305', '10/11/2022', 'Geeta','F', 15],['306', '10/11/2022', 'Arham','M', 15],['307', '11/11/2022', 'David','M', 18],['308', '11/11/2022', 'Madhuri','F', 17]] status=[] def Push_Element(visitors): global status for i in visitors: if i[4]>=15 and i[4]<=20: status.append(i[3]) def Pop_Element(): global status m,f=0,0 if status!=[]: r=status.pop() if r== 'F': f+=1 else: m+=1 else: print(“Female :”,f) print(“Male :”,m) print("Done") OR def Push(EventDetails): BigEvents=[] count=0 for i in EventDetails: if EventDetails[i]>200: BigEvents.append(i) count+=1 print(“The count of elements in the stack is”,count)	3																
SECTION-D																		

31.	Ans. (i) HR because it has maximum number of computers (ii) Star topology with HR at centre (any appropriate block diagram) (iii) Switch need to be installed in each of the block repeater where distance is greater than 100m (iv) VoIP (v) WAN	5*1										
32.	Ans. (a) 10 # 5 10 # 10 20 # 10 20 # 20 Ans: (b) Statement 1: con.cursor() Statement 2: mycursor.execute(query) Statement 3: con.commit() OR Ans. (a) gliE# E#A#GgAas# F# AaEe# Ans. (b) Statement 1: con.cursor() Statement 2: mycursor.execute(“select Name from items where price>100”) Statement 3: mycursor.fetchall()	2+3										
33.	(a) Advantage of a csv file: It is human readable – can be opened in Excel and Notepad applications It is just like text file (b) ½ marks for each correct piece of code. OR Ans: Difference between binary file and csv file: (Any one difference may be given) Binary file: <table><tr><th>Binary</th><th>CSV</th></tr><tr><td>Extension is .dat</td><td>Extension is .csv</td></tr><tr><td>Not human readable</td><td>Human readable</td></tr><tr><td>Stores data in the form of 0s and 1s</td><td>Stores data like a text file</td></tr><tr><td>CSV file</td><td></td></tr></table> Program: import csv def add(): fout=open("empdata.csv","a",newline="\n") wr=csv.writer(fout) fid=int(input("Enter Emp Id :: ")) fname=input("Enter Emp name :: ") fprice=int(input("Enter psalary :: ")) FD=[eid,ename,salary] wr.writerow(FD) fout.close() def search(): fin=open("furdata.csv","r",newline="\n") data=csv.reader(fin)	Binary	CSV	Extension is .dat	Extension is .csv	Not human readable	Human readable	Stores data in the form of 0s and 1s	Stores data like a text file	CSV file		2+3
Binary	CSV											
Extension is .dat	Extension is .csv											
Not human readable	Human readable											
Stores data in the form of 0s and 1s	Stores data like a text file											
CSV file												

	<pre> found=False print("The Details are") for i in data: if int(i[2])>10000: found=True print(i[0],i[1],i[2]) if found==False: print("Record not found") fin.close() add() print("Now displaying") search() </pre>	
SECTION-E		
34.	Ans. (i) ItemNo (ii) Cardinality=3 and Degree=9 (iii) a) Insert into items values (2024, 'point pen', 20, 11, 350, '2022-NOV-15'); b) Update items Set rate=rate+(rate*0.02) Where Item like '%c'; OR iii) Delete From items where rate>=10; b) Alter table items Add column (Remarks Varchar(50));	1+1 +2
35.	(i) pickle (ii) fout=open('extra.dat', 'wb') (iii) pickle.load(fin) (iv) pickle.dump(rec,fout)	1 1 1 1

केंद्रीय विद्यालय संगठन, जयपुर संभाग
Kendriya Vidyalaya Sangathan, Jaipur Region
प्रथम प्री-बोर्ड परीक्षा 2023-24
First Pre-Board Exam 2023-24

कक्षा/Class: XII

विषय/Subject : Computer Science (083)

समय : 3 घंटे

पूर्णांक/Max Marks: 70

सामान्य निर्देश / General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions (1 to 18) carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions (19 to 25) carrying 02 marks each.
5. Section C has 05 Short Answer type questions (26 to 30) carrying 03 marks each.
6. Section D has 02 Long Answer type questions (31 to 32) carrying 04 marks each.
7. Section E has 03 questions (33 to 35) carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

खंड / SECTION-A		
प्रश्न सं. Q. No.	प्रश्न / Question	अंक / Marks
1.	State True or False “continue keyword is not a jump statement in a loop.”	1
2.	Fill in the blank: _____command is used to remove a column from a table in SQL. (a)update (b)remove (c) alter (d)drop	1
3.	Given the following dictionaries dict_stud = {"rno" : "53", "name" : 'Rajveer Singh'} dict_mark = {"Accts" : 87, "English" : 65} Which statement will merge the contents of both dictionaries in dict_stud? (a) dict_stud + dict_mark (b) dict_stud.add(dict_mark) (c) dict_stud.merge(dict_mark) (d) dict_stud.update(dict_mark)	1
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
5.	Which of the following commands will delete the rows of table? (a) DROP command (b) DELETE Command (c) REMOVE Command (d) ALTER Command	1
6.	Fill in the blank: _____is the first page that normally view at a website. (a) First Page (b) Master Page (c) Home Page (d) Login Page	1
7.	When a Python function does not have return statement then what it returns? (a) int (b) float (c) None (d)Give Error	1
8.	Select the correct output of the code: >>> a= "Year 2022 at All the best" >>> a = a.split('2') >>> a = a[0] + "." + a[1] + "." + a[3]	1

	>>> print (a) (a) Year . 0. at All the best (c) Year . 022. at All the best (b) Year 0. at All the best (d) Year . 0. at all the best	
9.	Which of the following statement(s) would give an error after executing the following code? S="Welcome to class XII" # Statement 1 print(S) #Statement 2 S="Thank you" # Statement 3 S[0]= '@' # Statement 4 S=S+"Thank you" # Statement 5 (a) Statement 3 (b) Statement 4 (c) Statement 5 (d) Statement 4 and 5	1
10.	What will the following expression be evaluated to in Python? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1
11.	Which is the smallest network? a) WAN (b) LAN c) MAN (d) PAN	1
12.	Write the possible outputs(s) when this code is executed? import random n=random.randint(0,3) color=["Y","W","B","R"] for i in range (1,n): print(color[i], end="*") print() a) R * b) W* W* B* B* c) W* W* d) Y* B* B* W* W* B* B* B*	1
13.	Which Python approach is used for object serialization in handling of Binary File? (a) Pickling (b) Un-pickling (c) Merging (d) None of these	1
14.	Fill in the blank: _____Keyword is used to obtain Non-duplicated values in a SELECT query. (a) ALL (b) DISTINCT (c) SET (d) HAVING	1
15.	Fill in the blank: _____ is the way of connecting the networking devices.	1
16.	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? (a) Mycur.fetch() (b) Mycur.fetchone() (c) Mycur.fetchmany(n) (d) Mycur.fetchall()	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A): A variable declared as global inside a function is visible with changes made to it outside the function.	1

	Reasoning (R): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	
18.	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (R): A binary files are just like normal text files and can be read using a text editor like notepad.	1
खंड / SECTION-B		
19.	(i) Write the full forms of the following: (a) IP (b) URL (ii) What is the use of VoIP? OR (i) Mention one advantage of Star Topology. (ii) Mention one difference between a Hub and switch in networking.	1+1=2
20.	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. Define reverse(num): rev = 0 While num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234))	2
21.	Write a function INDEX_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of L. For example: If L contains: [2, 0, 5, 0, 1, 0, 0] The indexList will have: [0,2,4] OR Write definition of a function Count_How_Many(Data, item) to count and display number of times the value of item is present in the list Data. (Note: don't use the count() function) For example : If the Data contains [101,102,107,105,102,103,104,102] and item contains 102 The function should display 102 found 3 Times.	2
22.	Predict the output of the Python code given below: def foo(s1,s2): l1=[] l2=[] for x in s1: l1.append(x) for x in s2: l2.append(x) return l1,l2 a,b=foo("HAPPY","BIRTHDAY") print(a,b)	2
23.	Write the Python statement for each of the following tasks: (i) str="PYTHON@LANGUAGE" To print the above string from index 2 onwards using a single statement. (ii)To initialize an empty dictionary named as d using BUILT_IN fuctions/ methods only. OR Write the Python statement for each of the following tasks using BUILT_IN fuctions/ methods only:	1+1=2

	(i) s="LANGUAGE" To convert the above string into list. (ii) To initialize an empty tuple named as t.																																																	
24.	A MySQL table, sales have 10 rows with many columns, one column name is DISCOUNT. Following queries were executed on sales table. SELECT COUNT(*) FROM sales; <table><tr><td>COUNT(*)</td></tr><tr><td>10</td></tr></table> SELECT COUNT(DISCOUNT) FROM sales; <table><tr><td>COUNT(DISCOUNT)</td></tr><tr><td>6</td></tr></table> Write a statement to explain as to why there is a difference in result of both queries. OR Write commands to open database 'KVS' and show all tables in this database. And display design/schema/structure of the table EMPLOYEE which is inside this database. And display all the records of table EMPLOYEE.	COUNT(*)	10	COUNT(DISCOUNT)	6	2																																												
COUNT(*)																																																		
10																																																		
COUNT(DISCOUNT)																																																		
6																																																		
25.	Predict the output of the Python code given below: <pre>data = [20,19,19,17,20,19,17,20] d = {} for x in data: if x in d: d[x]=d[x]+1 else: d[x]=1 print(d)</pre>	2																																																
खंड / SECTION-C																																																		
26.	Write the output of the code given below: <pre>def change(Line): alpha=str() digi=str() for ch in Line: if(ch.isalpha()): if(ch.islower()): alpha=alpha+ch.upper() elif(ch.isupper()): alpha=alpha+ch.lower() elif(ch.isdigit()): alpha=alpha+ch+ch print(Line) print(alpha) change("Vande 0 Bharat 9 Train 1")</pre>	3																																																
27.	Write the output of queries (i) to (iii) based on the table Sportsclub given below: Table: Sportsclub <table><tr><th>playerid</th><th>pname</th><th>sports</th><th>country</th><th>rating</th><th>salary</th></tr><tr><td>10001</td><td>PELE</td><td>SOCCER</td><td>BRAZIL</td><td>A</td><td>50000</td></tr><tr><td>10002</td><td>FEDERER</td><td>TENNIS</td><td>SWEDEN</td><td>A</td><td>20000</td></tr><tr><td>10003</td><td>VIRAT</td><td>CRICKET</td><td>INDIA</td><td>A</td><td>15000</td></tr><tr><td>10004</td><td>SANIA</td><td>TENNIS</td><td>INDIA</td><td>B</td><td>5000</td></tr><tr><td>10005</td><td>NEERAJ</td><td>ATHLETICS</td><td>INDIA</td><td>A</td><td>12000</td></tr><tr><td>10006</td><td>BOLT</td><td>ATHLETICS</td><td>JAMAICA</td><td>A</td><td>8000</td></tr><tr><td>10007</td><td>PAUL</td><td>SNOOKER</td><td>USA</td><td>B</td><td>10000</td></tr></table> (i) SELECT DISTINCT sports FROM Sportsclub; (ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports	playerid	pname	sports	country	rating	salary	10001	PELE	SOCCER	BRAZIL	A	50000	10002	FEDERER	TENNIS	SWEDEN	A	20000	10003	VIRAT	CRICKET	INDIA	A	15000	10004	SANIA	TENNIS	INDIA	B	5000	10005	NEERAJ	ATHLETICS	INDIA	A	12000	10006	BOLT	ATHLETICS	JAMAICA	A	8000	10007	PAUL	SNOOKER	USA	B	10000	1*3=3
playerid	pname	sports	country	rating	salary																																													
10001	PELE	SOCCER	BRAZIL	A	50000																																													
10002	FEDERER	TENNIS	SWEDEN	A	20000																																													
10003	VIRAT	CRICKET	INDIA	A	15000																																													
10004	SANIA	TENNIS	INDIA	B	5000																																													
10005	NEERAJ	ATHLETICS	INDIA	A	12000																																													
10006	BOLT	ATHLETICS	JAMAICA	A	8000																																													
10007	PAUL	SNOOKER	USA	B	10000																																													

	HAVING sports<>'SNOOKER'; (iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC;																																											
28.	A pre-existing text file data.txt has some words written in it. Write a python function displaywords() that will print all the words that are having length greater than 3. If the contents of file is : A man always wants to strive higher in his life He wants to be perfect. The output should be: always wants strive higher life wants perfect. OR Write a method count_lines() in Python to read lines from text file 'student.txt' and display the total number of line in file and lines which are ending with 'y' alphabet and not ending with 'y' separately. Example: If the file content is as follows: An apple in a day keeps the doctor away. We should aware for everyone's safety and security. India is one of the biggest country in word. The count_lines() function should display the output as: The number of lines in file are: 3 The number of lines ending with alphabet 'y' are: 2 The number of lines not ending with alphabet 'y' are: 1	3																																										
29.	Monika is a senior clerk in a MNC. She created a table 'Salary' with a set of records to keep ready for tax calculation. After creation of the table, she has entered data of 5 employees in the table. <table><tr><th>emp_id</th><th>emp_name</th><th>emp_desig</th><th>basic</th><th>da</th><th>hra</th><th>nps</th></tr><tr><td>E01</td><td>Naveen Roy</td><td>Manager</td><td>70000</td><td>20000</td><td>8000</td><td>7000</td></tr><tr><td>E02</td><td>Pawan Ahuja</td><td>Junior Clerk</td><td>20000</td><td>2000</td><td>2500</td><td>2000</td></tr><tr><td>E03</td><td>Kalpna Rani</td><td>Public Expert</td><td>50000</td><td>5000</td><td>4500</td><td>2500</td></tr><tr><td>E04</td><td>Govind Mishra</td><td>Director</td><td>90000</td><td>40000</td><td>11500</td><td>900</td></tr><tr><td>E05</td><td>Seeta Johar</td><td>Production Manager</td><td>80000</td><td>35000</td><td>10500</td><td>850</td></tr></table> Based on the table given above write the SQL Queries: (i) Display the Emp_Name and Gross salary of each employee. (Gross= basic+da+hra+nps) (ii) Increase the DA by 3% of respective basic salary of all employees. (iii) Delete the Attribute emp_desig from the table.	emp_id	emp_name	emp_desig	basic	da	hra	nps	E01	Naveen Roy	Manager	70000	20000	8000	7000	E02	Pawan Ahuja	Junior Clerk	20000	2000	2500	2000	E03	Kalpna Rani	Public Expert	50000	5000	4500	2500	E04	Govind Mishra	Director	90000	40000	11500	900	E05	Seeta Johar	Production Manager	80000	35000	10500	850	1*3=3
emp_id	emp_name	emp_desig	basic	da	hra	nps																																						
E01	Naveen Roy	Manager	70000	20000	8000	7000																																						
E02	Pawan Ahuja	Junior Clerk	20000	2000	2500	2000																																						
E03	Kalpna Rani	Public Expert	50000	5000	4500	2500																																						
E04	Govind Mishra	Director	90000	40000	11500	900																																						
E05	Seeta Johar	Production Manager	80000	35000	10500	850																																						
30.	A list of numbers is used to populate the contents of a stack using a function push(stack, data) where stack is an empty list and data is the list of numbers.The function should push all the numbers that are even to the stack. Also write the function pop(stack) that removes and returns the top element of the stack on its each call. Also write the function calls.	3																																										

खंड / SECTION-D

31. Write the SQL queries (i) to (iv) based on the relations SCHOOL and ADMIN given below: 1*4=4

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

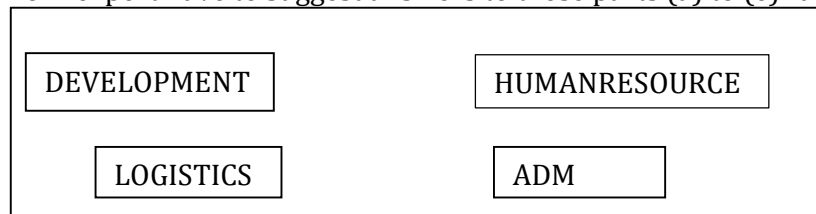
Write SQL queries for the following:

- i) Display total periods subjectwise.
- ii) Display minimum experience and maximum code from relation SCHOOL.
- iii) Display teachername, gender by joining both tables on the basis of CODE attribute for the designation "COORDINATOR.
- iv) Display the total number of different subjects in school relation.

32. Write a Program in Python that defines and calls the following user defined functions:
 Add_New():
 To accept record of Player and add to 'playerdata.csv' file. The record of player consists P_id, P_name and P_runs in form of python list.
 Display_Record():
 To read the records of Player from 'playerdata.csv' file and display the record of player whose runs are more than 5000.

खंड / SECTION-E

33. Hitech Info Limited wants to set up their computer network in Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. You as a network expert have to suggest answers to these parts (a) to (e) raised by them.



Shortest distances between various blocks

Block DEVELOPMENT to Block HUMANRESOURCE -- 50 m

Block DEVELOPMENT to Block ADM-- 75 m

	Block DEVELOPMENT to Block LOGISTICS--80 m Block HUMANRESOURCE to Block ADM--110 m Block ADM to Block LOGISTICS140 m Number of computers installed at various blocks <table><tr><th>Block</th><th>Number of Computers</th></tr><tr><td>DEVELOPMENT --</td><td>105</td></tr><tr><td>HUMANRESOURCE--</td><td>130</td></tr><tr><td>ADM--</td><td>190</td></tr><tr><td>LOGISTICS--</td><td>55</td></tr></table> a) Suggest the most suitable block to host the server. Justify your answer. b) Suggest the wired medium and Draw the cable layout (Block to Block) to economically connect various blocks. c)Suggest the placement of the following devices with justification: (i) Hub/Switch(ii)Repeater d)Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services. e) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.	Block	Number of Computers	DEVELOPMENT --	105	HUMANRESOURCE--	130	ADM--	190	LOGISTICS--	55	
Block	Number of Computers											
DEVELOPMENT --	105											
HUMANRESOURCE--	130											
ADM--	190											
LOGISTICS--	55											
34	(i) What is CSV means? Which packages/modules are imported for using Binary Files and CSV files in Python? (ii) Abhay have a binary file called library.dat containing book information- B_id, B_name and B_price of each book. [[B_id, B_name, B_price],[B_id, B_name, B_price],...] Write the user defined function Trace_Book() to show the records of books having the price less than 1000. In case there is no book having price <1000 the function displays message “Such Record not found”. OR (i) Write any two difference between text file and binary file. (ii)Mayur is a student, who have a binary file called STUDENT.DAT containing employee information- sid, name and age of each student. [sid, name , age] Write the user defined function Get_Stud() to display the name and age of those student who have a age greater than 18 year. In case there is no student having age >18 the function displays message “There is no student who is greater than 18 year”.	2+3= 5										
35	(i) What is the difference between a Candidate Key and an Alternate Key. (ii) Virat has created a table named TRAVELS in MySQL: Tour_ID – string Destination – String Geo_Cond– String Distance – integer (In KM) Note the following to establish connectivity between Python and MYSQL: • Username is root • Password is bharat • The table TRAVELS exists in a MYSQL database named TOUR. • The details Tour_ID, Destination, Geo_Cond and Distance are to be accepted from the user. Virat wants to display All Records of TRAVELS relation whose Geographical condition	1+4=5										

is hilly area and distance less than 1000 KM. Help Virat to write program in python.

OR

(i) Write one point of difference between PRIMARY KEY and UNIQUE KEY in SQL.

(ii) Aarya has created a table named Emp in MySQL:

EmpNo – integer

EmpName – string

Age– integer

Salary – integer

Note the following to establish connectivity between Python andMySQL:

- Username - root
- Password - tiger
- Host - localhost
- The Emp table exists in a MYSQL database named **company**.
- The details of Emp table (EmpNo, EmpName, Age and Salary)

Aarya wants to display All Records of Emp relation whose age is greater than 55. Help Aarya to write program in python.

-----*-----*-----

KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION

PreBoard-I Examination 2023-24

Class-XII

Subject: Computer Science (083)

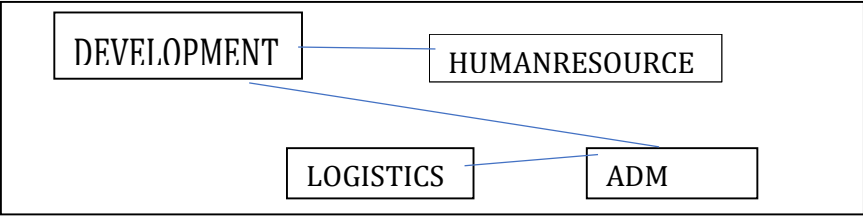
Answer Key

SECTION-A								
QN.	Answer of Question							
1.	Ans. False	1						
2.	Ans. (c) alter	1						
3.	Ans: (d) dict_student.update(dict_marks)	1						
4.	Ans. (b) True	1						
5.	Ans. (b) DELETE Command	1						
6.	Ans: (c) HomePage	1						
7.	Ans. (c) None	1						
8.	Ans. (a) Year . 0. at All the best	1						
9.	Ans. (b) Statement 4	1						
10.	Ans. (c) 512	1						
11.	Ans: (d) PAN	1						
12.	Ans. (b) W* B*	1						
13.	Ans. (a) Pickling	1						
14.	Ans. (b) DISTNICT	1						
15.	Ans. Topology	1						
16.	Ans. (a) Mycur.fetch()	1						
17.	Ans. (c) A is True but R is False	1						
18.	Ans. (c) A is True but R is False	1						
SECTION-B								
19.	(i) (a) IP-Internet Protocol (b) URL- Uniform Resource Locator (1/2 mark for each) (ii)VoIP is used to transfer audio (voice) and video over internet(1 mark) OR (i) Advantage: The network remains operational even if one of the nodes stopsworking. (1 mark for any ONE advantage) (ii) <table><tr><th>Hub</th><th>Switch</th></tr><tr><td>Hub is a passive Device</td><td>Switch is an active device</td></tr><tr><td>Hub broadcasts messages to all nodes</td><td>Switch sends the messages to intended node.</td></tr></table> Or any other valid difference between the two. (1 mark for ANY ONE difference)	Hub	Switch	Hub is a passive Device	Switch is an active device	Hub broadcasts messages to all nodes	Switch sends the messages to intended node.	2
Hub	Switch							
Hub is a passive Device	Switch is an active device							
Hub broadcasts messages to all nodes	Switch sends the messages to intended node.							
20.	def reverse(num): rev = 0 while num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234)) (½ Mark for each correction up to any 4 corrections)	1+1 =2						

21.	<pre>def INDEX_LIST(L): indexList=[] for i in range(len(L)): if L[i]!=0: indexList.append(i) return indexList</pre> (½ mark for correct function header 1 mark for correct loop 1 mark for correct if statement ½ mark for return statement) Note: Any other relevant and correct code may be marked OR <pre>def Count_How_Many(Data, item): count=0 for n in Data: if(n==item): count+=1 print(item, " found ", count, "times")</pre> d=[101,102,107,105,102,103,104,102] i=102 Count_How_Many(d,i) or any other correct logic	1+1=2
22.	['H', 'A', 'P', 'P', 'Y'] ['B', 'I', 'R', 'T', 'H', 'D', 'A', 'Y']	2
23.	(i) str="PYTHON@LANGUAGE" print(str[2: :]) (ii) d=dict() OR (i) s="LANGUAGE" l=list(s) (ii) t=tuple()	2
24.	COUNT(*) returns the count of all rows in the table, whereas COUNT (COLUMN_NAME) is used with Column_Name passed as argument and counts the number of non-NULL values in a column that is given as argument. Here discount column is having 4 rows with NULL values. OR Use KVS; (1/2 mark) Show Tables; (1/2 mark) Desc EMPLOYEE; (1/2 MARK) Select * from EMPLOYEE; (1/2 MARK)	2
25.	{20: 3, 19: 3, 17: 2}	2
SECTION-C		
26.	Vande O Bharat 9 Train 1 vANDE00bHARAT99tRAIN11 (3 marks for correct answer. Partial marks may be given for partially correct answer.)	3
27.	(1 mark for each correct output)	1*3=3

	(i) <table><tr><td>sports</td></tr><tr><td>SOCCER</td></tr><tr><td>TENNIS</td></tr><tr><td>CRICKET</td></tr><tr><td>ATHLETICS</td></tr><tr><td>SNOOKER</td></tr></table> ii) <table><tr><td>Sports</td><td>MAX(salary)</td></tr><tr><td>SOCCER</td><td>50000</td></tr><tr><td>TENNIS</td><td>20000</td></tr><tr><td>CRICKET</td><td>15000</td></tr><tr><td>ATHLETICS</td><td>12000</td></tr></table> iii) <table><tr><td>pname</td><td>sports</td><td>salary</td></tr><tr><td>VIRAT</td><td>CRICKET</td><td>15000</td></tr><tr><td>NEERAJ</td><td>ATHLETICS</td><td>12000</td></tr><tr><td>SANIA</td><td>TENNIS</td><td>5000</td></tr></table>	sports	SOCCER	TENNIS	CRICKET	ATHLETICS	SNOOKER	Sports	MAX(salary)	SOCCER	50000	TENNIS	20000	CRICKET	15000	ATHLETICS	12000	pname	sports	salary	VIRAT	CRICKET	15000	NEERAJ	ATHLETICS	12000	SANIA	TENNIS	5000	
sports																														
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CRICKET																														
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CRICKET	15000																													
ATHLETICS	12000																													
pname	sports	salary																												
VIRAT	CRICKET	15000																												
NEERAJ	ATHLETICS	12000																												
SANIA	TENNIS	5000																												
28.	def displaywords (): file = open('data.txt','r') st=file.read() lst=st.split() for k in lst: if len[k] >3: print(k, end=" ") file.close() displaywords ()# Call the displaywords (½ mark for function header, 1 mark for opening file, 1 mark for correct for loop and condition,½ mark for closing file) OR def count_lines(): f=open("student.txt",'r') rows=f.readlines() end_y=not_y=0 for rec in rows: if(rec[-1]=='\n'): end_y+=1 else: not_y+=1 print("The number of lines in file are", len(rows)) print("The number of lines ending with alphabet 'y' are:",end_y) print("The number of lines not ending with alphabet 'y' are:",not_y) count_lines() #call the function (½ mark for function header, 1 mark for opening file, 1 mark for correct for loop and condition,½ mark for closing file)	3																												
29.	(i) SELECT EMP_NAME, BASIC+DA+HRA+NPS AS “GROSS SALARY” FROM SALARY; (ii)UPDATE SALARY SET DA=DA+0.03*BASIC; (iii)ALTER TABLE SALARY DROP COLUMN EMP_DESIG;	1*3 =3																												

30.	<pre> data = [1,2,3,4,5,6,7,8] stack = [] def push(stack, data): for x in data: if x % 2 == 0: stack.append(x) def pop(stack): if len(stack)==0: return "stack empty" else: return stack.pop() push(stack, data) print(pop(stack)) </pre> (½ mark should be deducted for all incorrect syntax. Full marks to be awarded for any other logic that produces the correct result.)	3
SECTION-D		
31.	i)SELECT SUM (PERIODS), SUBJECT FROM SCHOOL GROUP BY SUBJECT ; ii) SELECT MIN(EXPERIENCE), MAX(CODE) FROM SCHOOL; iii)SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE; iv)SELECT COUNT(DISTINCT SUBJECT) FROM SCHOOL; (1 mark for each correct query)	1*4 =4
32.	<pre> import csv def Add_New(): fout=open("playerdata.csv ","a",newline='\n') wr=csv.writer(fout) P_id=int(input("Enter Player Id :: ")) P_name=input("Enter Player name :: ") P_runs=int(input("Enter price :: ")) playerlist=[P-id,P_name,P_runs] wr.writerow(playerlist) fout.close() def Display_Record(): fin=open("playerdata.csv ","r") data=csv.reader(fin) found=False print("The Player Records are: ") for Rec in data: if int(rec[2])>5000: found=True print(rec[0],rec[1],rec[2]) if found==False: print("Such Record not found") Add_New(): Display_Record(): </pre> (½ mark for importing csv module) (1 ½marks each for correct definition of Add_New() and Display_Record ()) (½ mark for function call statements)	2+2= 4

SECTION-E		
33.	i) ADM Block Justification- It has maximum number of computers. Reduce traffic. ii) wired medium is ethernet cables. Following bus (cable cost efficient) or star with ADM as centre (network traffic efficient)  iii) (a) Switches in all the blocks since the computers need to be connected to the network. (b) Repeaters between ADM and HUMANRESOURCE block & ADM and Logistics block. The reason being the distance is more than 100m. iv) Modem should be placed in the Server building v) Optical Fiber cable connection	1*5=5
34.	(i) Full form of CSV is Comma Separated Value. pickle module is used for Binary files and csv module is used for importing csv files. (1 + ½ + ½) ii) import pickle <pre>def Trace_Book(): fopen=open("library.dat","r") data=pickle.load(fopen) found=False print("The Book Records are: ") for Rec in data: if (rec[2])<1000: found=True print(rec[0],rec[1],rec[2]) if found==False: print("Such Record not found") Trace_Book():</pre> OR (i) (1 mark for each difference between text file and binary file) (ii) import pickle <pre>def Get_Stud(): Total = 0 Count_rec = 0 Count_age = 0 with open("STUDENT.DAT", "rb") as F: while True: try: R=pickle.load(f) Count_rec = Count_rec+1 Total = Total+R[2] if R[2] > 18: print (R[1],"is of Age :",R[2]) Count_age += 1 except: break if Count_age == 0 : print("There is no student who is greater than 18 year")</pre>	2+3=5

	Get_Stud()											
35.	(i)Any one difference: <table><tr><th>CANDIDATE KEY</th><th>ALTERNATE KEY</th></tr><tr><td>All attributes in a relation thathave potential to become a Primary key</td><td>All the leftover candidate keys after selecting the primary key</td></tr></table> (ii) import mysql.connector as BD def Emp_Database(): con=BD.connect(host="localhost", user="root", password="bharat", database="TOUR") BDcursor=con.cursor() print("Travels at Hilly Area and the distance more than 1000 KM.:") BDcursor.execute("select * from TRAVELS WHERE Geo_Cond ='hilly area' AND Distance<1000) TravelRec= BDcursor.fetchall() for rec in TravelRec: print(rec) OR (i)Any one difference: <table><tr><th>PRIMARY KEY</th><th>UNIQUE KEY</th></tr><tr><td>There can be only one primary key in a table</td><td>There can be more than one unique keys in a table</td></tr><tr><td>The primary key cannot have null values</td><td>Unique can have null values</td></tr></table> (ii) import mysql.connector as cnt def Emp_Database(): con=cnt.connect(host="localhost", user="root", password="tiger", database="company") mycursor= con.cursor() print("Display Employee whose age is more than 55 years:") mycursor.execute("select * from Emp where age>55") EmpRec= mycursor.fetchall() for rec in EmpRec: print(rec)	CANDIDATE KEY	ALTERNATE KEY	All attributes in a relation thathave potential to become a Primary key	All the leftover candidate keys after selecting the primary key	PRIMARY KEY	UNIQUE KEY	There can be only one primary key in a table	There can be more than one unique keys in a table	The primary key cannot have null values	Unique can have null values	1+4=5
CANDIDATE KEY	ALTERNATE KEY											
All attributes in a relation thathave potential to become a Primary key	All the leftover candidate keys after selecting the primary key											
PRIMARY KEY	UNIQUE KEY											
There can be only one primary key in a table	There can be more than one unique keys in a table											
The primary key cannot have null values	Unique can have null values											

केंद्रीय विद्यालय संगठन, जयपुर संभाग
Kendriya Vidyalaya Sangathan, Jaipur Region
प्रथम प्री-बोर्ड परीक्षा 2023-24
First Pre-Board Exam 2023-24

कक्षा/Class: XII

विषय/Subject : Computer Science (083)

समय : 3 घंटे

पूर्णांक/Max Marks: 70

सामान्य निर्देश / General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

खंड / SECTION-A		
प्रश्न सं. Q. No.	प्रश्न / Question	अंक / Marks
1	State True or False: “Lexical unit is the smallest unit of any programming language”	1
2	Fill in the blank: _____command is used to remove the tuple from the table in SQL. (a) update (b) remove (c) alter (d) delete	1
3	What will be the output of the following statement: print ((30.0 // 4 + (8 + 3.0))) a. 14.75 b. 18.0 c. -18.0 d. Error	1
4	Select the correct output of the code: >>> Str= "BHASHA SANGAM @ 75" >>> S=Str.partition(" ") >>> print(S) a. (@ 75' 'BHASHA', ' ', 'SANGAM,) b. ('BHASHA', ' @', 'SANGAM , 75') c. (' ', ' ', 'BHASHA SANGAM @ 75') d. ('BHASHA', ' ', 'SANGAM @ 75')	1

10	What possible outputs(s) will be obtained when the following code is executed? <pre>import random Signal=['Stop','Wait','Go'] for K in range (2,0,-1): R=random.randrange(K) print(Signal[R], end='#')</pre> options: - Stop#Go# - Wait#Stop# - Go#Stop# - Go#Wait#	1
11	Fill in the blank:is a communication methodology designed to deliver emails over Internet protocol. - VIOP - SMTP - PPP - HTTP	1
12	Consider the code given below and find correct output: <pre>x=5 def function1(): global x y=x+x*2 print(y,end=","") x=7 function1() print(x)</pre> Output: 21 , 7 15 , 5 21 , 5 15, 7	1

13	State whether the following statement is True or False: Exception handling can be done for both user-defined and built-in exceptions.	1
14	Which of the following statements is FALSE in reference to MySQL? a. It is an RDBMS. b. It is case sensitive. c. It is an open source. d. It is ideal for both small and large applications.	1
15	Fill in the blank: In case of _____ switching, each information or message to be transmitted between sender and receiver is broken down into smaller pieces.	1
16	Which method is used to move the file pointer to a specified position.? a.tellg() b.tell() c.seek() d.seekg()	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	
17	Assertion(A): Access mode 'a' opens a file for appending. Reasoning(R): The file pointer is at the end of the file if the file exists.	1
18	Assertion(A): A function is block of organized and reusable code that is used to perform a single, related action. Reasoning(R): Function provides better modularity for your application and a high degree of code reusability.	1

खंड / SECTION B

19	(i) Expand the following terms: SMTP, IMAP (ii) Give one difference between Active Hub and Passive Hub. OR (i) Define the term Protocol with respect to networks. (ii) How is Hub different from Switch?	1+1=2
20	Harsh has written a code to input a number and find a table of any number. His code is having errors. Rewrite the correct code and underline the corrections made. <pre>def table(): n=int("Enter number which table U need:") for i in (1,11): print("Table of Enter no=",i*i) Table()</pre>	2
21	Write a function countMy(SUBJECT) in Python, that takes the dictionary, SUBJECT as an argument and displays the names (in uppercase) of the subjects whose names are longer than 5 characters. For example, Consider the following dictionary SUBJECT={1:"Hindi",2:"Physics",3:"Chemistry",4:"cs",5:"Math"} The output should be: HINDI PHYSICS CHEMISTRY OR Write a function, lenLines(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string. For example, if the string is " let us learn Python", the tuple will have (3, 2, 5, 6)	2

22	Predict the output of the following code: <pre> tuple1 = (11,22,33,44,55,66) list1 =list(tuple1) new_list = [] for i in list1: if i%2==0 : new_list.append(i) new_tuple = tuple(new_list) print(new_tuple) </pre>	2
23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To insert an element 100 at the Second position, in the list L1. (ii) To check whether all the characters in the string S1 are digits or not. OR How the pop() function is different from remove() function working with list in python ? Explain with example.	1+1=2
24	Pooja wrote a query in SQL for student table but she is not getting desired result select * from student where fee = NULL; Rewrite the above query so that she gets desired result OR Categorize the following commands as DDL or DML: INSERT, ALTER, DROP, DELETE, UPDATE, CREATE	2
25	Predict the output of the following code: <pre> def Diff(N1,N2): if N1<N2: return N1-N2 else: return N2*N1 NUM= [10,23,14,54,32] for CNT in range (4,0,-1): A=NUM[CNT] B=NUM[CNT-1] print(Diff(A,B),'#', end=' ') </pre>	2

खंड / SECTION C

26	Predict the output of the Python code given below: <pre>def my_city (L,N): for i in range(0,N): if len(L)>4: L[i]=L[i]+L[i] else: L[i]=L[i] sub=['Delhi','Jaipur','Agra','Surat','Mumbai','Bhopal'] my_city(sub,6) print(sub)</pre>	3																																																																																				
27	Write the outputs of the SQL queries (a) to (c) based on the relation Furniture <table><tr><th>No</th><th>Itemname</th><th>Type</th><th>Dateofstock</th><th>Price</th><th>Discount</th></tr><tr><td>1</td><td>White lotus</td><td>Double Bed</td><td>23/02/2002</td><td>30000</td><td>25</td></tr><tr><td>2</td><td>Pink feather</td><td>Baby Cot</td><td>20/01/2002</td><td>7000</td><td>20</td></tr><tr><td>3</td><td>Dolphin</td><td>Baby Cot</td><td>19/02/2002</td><td>9500</td><td>20</td></tr><tr><td>4</td><td>Decent</td><td>Office Table</td><td>01/01/2002</td><td>25000</td><td>30</td></tr><tr><td>5</td><td>Comfort Zone</td><td>Double Bed</td><td>12/01/2002</td><td>25000</td><td>25</td></tr><tr><td>6</td><td>Donald</td><td>Baby Cot</td><td>24/02/2002</td><td>6500</td><td>15</td></tr><tr><td>7</td><td>Royal finish</td><td>Office Table</td><td>20/02/2002</td><td>18000</td><td>30</td></tr><tr><td>8</td><td>Royal tiger</td><td>Sofa</td><td>22/02/2002</td><td>31000</td><td>30</td></tr><tr><td>9</td><td>Econo sitting</td><td>Sofa</td><td>13/12/2001</td><td>9500</td><td>25</td></tr><tr><td>10</td><td>paradise</td><td>Dining Table</td><td>19/02/2002</td><td>11500</td><td>25</td></tr><tr><td>11</td><td>Wood Comfort</td><td>Double Bed</td><td>23/03/2003</td><td>25000</td><td>25</td></tr><tr><td>12</td><td>Old Fox</td><td>Sofa</td><td>20/02/2003</td><td>17000</td><td>20</td></tr><tr><td>13</td><td>Micky</td><td>Baby Cot</td><td>21/02/2003</td><td>7500</td><td>15</td></tr></table> (a) SELECT Itemname FROM Furniture WHERE Type="Double Bed"; (b) SELECT Dateofstock FROM Furniture WHERE Type="Sofa" order by Dateofstock; (c) SELECT Type,sum(Price) FROM Furniture group by Type;	No	Itemname	Type	Dateofstock	Price	Discount	1	White lotus	Double Bed	23/02/2002	30000	25	2	Pink feather	Baby Cot	20/01/2002	7000	20	3	Dolphin	Baby Cot	19/02/2002	9500	20	4	Decent	Office Table	01/01/2002	25000	30	5	Comfort Zone	Double Bed	12/01/2002	25000	25	6	Donald	Baby Cot	24/02/2002	6500	15	7	Royal finish	Office Table	20/02/2002	18000	30	8	Royal tiger	Sofa	22/02/2002	31000	30	9	Econo sitting	Sofa	13/12/2001	9500	25	10	paradise	Dining Table	19/02/2002	11500	25	11	Wood Comfort	Double Bed	23/03/2003	25000	25	12	Old Fox	Sofa	20/02/2003	17000	20	13	Micky	Baby Cot	21/02/2003	7500	15	1*3 = 3
No	Itemname	Type	Dateofstock	Price	Discount																																																																																	
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4	Decent	Office Table	01/01/2002	25000	30																																																																																	
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12	Old Fox	Sofa	20/02/2003	17000	20																																																																																	
13	Micky	Baby Cot	21/02/2003	7500	15																																																																																	
28	Define a function SHOWWORD () in python to read lines from a text file STORY.TXT, and display those words, whose length is less than 5. OR Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt	3																																																																																				

29	Consider the table Emp given below: Table : EMP <table><tr><th>E_ID</th><th>Name</th><th>Desig</th><th>Salary</th><th>Allowance</th></tr><tr><td>E01</td><td>Ramesh</td><td>Manager</td><td>80000</td><td>5400</td></tr><tr><td>E02</td><td>Kailash</td><td>Clerk</td><td>NULL</td><td>2400</td></tr><tr><td>E03</td><td>Rudra</td><td>Supervisor</td><td>48000</td><td>NULL</td></tr><tr><td>E04</td><td>Sakila</td><td>Clerk</td><td>30000</td><td>2000</td></tr><tr><td>E05</td><td>Prachi</td><td>Supervisor</td><td>NULL</td><td>2800</td></tr></table> Based on the given table, write SQL queries for the following: (i) Increase the salary by 10% of employees whose allowance is known. (ii) Display Name and Total Salary (sum of Salary and Allowance) of all employees. The column heading 'Total Salary' should also be displayed. (iii) Delete the record of employees who have salary greater than 40000.	E_ID	Name	Desig	Salary	Allowance	E01	Ramesh	Manager	80000	5400	E02	Kailash	Clerk	NULL	2400	E03	Rudra	Supervisor	48000	NULL	E04	Sakila	Clerk	30000	2000	E05	Prachi	Supervisor	NULL	2800	1*3= 3
E_ID	Name	Desig	Salary	Allowance																												
E01	Ramesh	Manager	80000	5400																												
E02	Kailash	Clerk	NULL	2400																												
E03	Rudra	Supervisor	48000	NULL																												
E04	Sakila	Clerk	30000	2000																												
E05	Prachi	Supervisor	NULL	2800																												
30.	Mr.Abhishek has created a list of elements. Help him to write a program in python with functions, PushEl (S,element) and PopEl (S) to add a new element and delete an element from a List of element named 'S' considering them to act as push and pop operations of the Stack data structure . Push the element into the stack only when the element is divisible by 4. For eg:if L=[2,5,6,8,24,32] then stack content will be 32 <- Top 24 8	3																														

खंड / SECTION D

31

Consider the doctor and patient table and write the output of (i) to (iv)

Doctor

docid	Dname	Specialization	Outdoor
D1	MANISH	PHYSICIAN	MONDAY
D2	PARESH	EYE	FRIDAY
D3	KUMAR	ENT	SATURDAY
D4	AKASH	ENT	TUESDAY

Patient

Pid	Pname	did	Date_visit
P1	Lal singh	D2	2022-04-25
P2	Arjun	D1	2022-05-05
P3	Narender	D4	2022-03-13
P4	Mehul	D3	2022-07-20
P5	Naveen	D2	2022-05-18
P6	Amit	D1	2022-01-22

(I) select count(*) from patient where date_visit like '%2_';

(II) select specialization ,count(*) from doctor group by specialization;

(III) select a.dname, b.pname from doctor a, patient b where a.docid=b.did;

(IV) select dname from doctor,patient where docid=did and pname='Arjun';

1*4=4

32

A csv file “ result.csv” contains record of student in following order
[rollno, name, sub1,sub2,sub3,total]

Initially student total field is empty string as example data is given below
['1', 'Anil', '40', '34', '90', '']
['2', 'Sohan', '78', '34', '90', '']
['3', 'Kamal', '40', '45', '9', '']

A another file “final.csv” is created which reads records of “result.csv” and copy all records after calculating total of marks into final.csv. The contents of final.csv should be
['1', 'Anil', '40', '34', '90', '164']
['2', 'Sohan', '78', '34', '90', '202']
['3', 'Kamal', '40', '45', '9', '94']

(a) Define a function createcsv() that will create the result.csv file with the sample data given above.

(b) Define a function copycsv() that reads the result.csv and copy the same data after calculating total field into final.csv file.

4

	खंड / SECTION E																					
33	M/s Computer Solutions is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below. Physical locations of the blocks of M/s Computer Solutions HR BLOCK MEETING BLOCK FINANCE BLOCK Block to block distance (in m) <table><tr><th>Block (From)</th><th>Block (To)</th><th>Distance</th></tr><tr><td>HR Block</td><td>MEETING</td><td>110</td></tr><tr><td>HR Block</td><td>Finance</td><td>40</td></tr><tr><td>MEETING</td><td>Finance</td><td>80</td></tr></table> Expected number of computers <table><tr><th>Block</th><th>Computers</th></tr><tr><td>HR</td><td>25</td></tr><tr><td>Finance</td><td>120</td></tr><tr><td>MEETING</td><td>90</td></tr></table> (i) Which will be the most appropriate block, where M/s Computer Solutions should plan to install their server? (ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication. (iii) What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Bangalore with its London based office. • Satellite Link • Infrared • Ethernet (iv) Which of the following device will be suggested by you to connect each computer in each of the buildings? • Switch • Modem • Gateway (v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?	Block (From)	Block (To)	Distance	HR Block	MEETING	110	HR Block	Finance	40	MEETING	Finance	80	Block	Computers	HR	25	Finance	120	MEETING	90	1*5=5
Block (From)	Block (To)	Distance																				
HR Block	MEETING	110																				
HR Block	Finance	40																				
MEETING	Finance	80																				
Block	Computers																					
HR	25																					
Finance	120																					
MEETING	90																					

34	(i) Differentiate between rb+ and wb+ file modes in Python. (ii) Consider a binary file “employee.dat” containing details such as (empno, ename, salary). Write a python function to display details of those employees who are earning between 20000 and 30000 (both values inclusive). OR (i) Differentiate between dump and load functions in binary files? (ii) Write a Python function in Python to search the details of the employees [name, designation, salary] whose salary is greater than 5000. The records are stored in the file “emp.dat”. consider each record in the file emp.dat as a list containing name, designation and salary.	2+3= 5
35	(i) How many candidate key and primary key a table can have in a Database? (ii) Manish wants to write a program in Python to create the following table named “EMP” in MYSQL database, ORGANISATION: Eno (Employee No)- integer , Ename (Employee Name) - string Edept (Employee Department)-string, Sal (salary)-integer Note the following to establish connectivity between Python and MySQL: Username – root , Password – admin , Host - localhost The values of fields eno, ename, edept and Sal has to be accepted from the user. Help Manish to write the program in Python to insert record in the above table.. OR (i) Differentiate between degree & cardinality key in RDBMS? (iii) Vihaan wants to write a program in Python to create the following table named “EMP” in MYSQL database, ORGANISATION: Eno (Employee No)- integer , Ename (Employee Name) - string Edept (Employee Department)-string, Sal (salary)-integer Note the following to establish connectivity between Python and MySQL: Username – root , Password – admin , Host - localhost Help Vihaan to write the program in Python to Alter the above table with new column named Bonus (int).	1+4= 5

Class XII
Computer Science (083)
Marking Scheme

Time Allowed: 3 hours

MM: 70

<u>Ques No</u>	Question and Answers	Distribution of Marks	Total Marks
<u>SECTION A</u>			
1	True	1 mark for correct answer	1
2	Option d delete	1 mark for correct answer	1
3	Option b 18	1 mark for correct answer	1
4	Option d (‘BHASA’, ‘’, ‘SANGAM@75’)	1 mark for correct answer	1
5	Option b 15,50	1 mark for correct answer	1
6	Option a PAN	1 mark for correct answer	1
7	Option a r g b	1 mark for correct answer	1
8	Option b 2@tr	1 mark for correct answer	1

9	Option b Statement 4	1 mark for correct answer	1
10	Option b Wait#Stop#	1 mark for correct answer	1
11	Option b SMTP	1 mark for correct answer	1
12	Option a 21 7	1 mark for correct answer	1
13	True	1 mark for correct answer	1
14	Option b It is case sensitive	1 mark for correct answer	1
15	Packet	1 mark for correct answer	1
16	Option c seek ()	1 mark for correct answer	1
17	Option a Both A and R are true but R is the correct explanation for A	1 mark for correct answer	1

18	Option a Both A and R are true but R is the correct explanation for A	1 mark for correct answer	1
<u>SECTION B</u>			
19	(i) SMTP – Simple Mail Transfer Protocol IMAP – Internet Message Access Protocol (ii) Active hubs amplify the incoming electric signal, whereas passive hubs do not amplify the electric signal. (Any other valid difference may be considered) OR (i) A network protocol is an established set of rules that determine how data is transmitted between different devices in the same network. (ii) Hub is an electronic device that connects several nodes to form a network and redirect the received information to all the nodes in a broadcast mode. Whereas Switch is an intelligent device that connects several nodes to form a network and redirect the received information only to the intended node(s). (Any other valid difference may be considered)	½ mark for each correct expansion 1 mark for any one correct difference 1 mark for correct definition 1 mark for any one correct difference	1+1=2
20	<pre>def table (): n=int (<u>input</u> ("Enter number which table U need: ")) for i in <u>range</u> (1,11): print ("able of Enter no=",i*<u>n</u>) <u>table</u> ()</pre>	½ mark for each correction made	2

21	SUBJECT={1:"Hindi",2:"Physics",3:"Chemistry",4:"CS",5:"MATH"} <pre>def countMy (SUBJECT): for S in SUBJECT.values(): if len(S)>5: print(S.upper()) countMy()</pre> OR <pre>def lenLines (STRING): t=() L=STRING.split() for line in L: length=len(line) t=t+(length,) return t</pre> Note: Any other correct logic may be marked	½ mark for correct function header ½ mark for correct loop ½ mark for correct if statement ½ mark for displaying the output ½ mark for correct function header ½ mark for using split() ½ mark for adding to tuple ½ mark for return statement	2
22	(22, 44, 66)	1½ mark for each correct digit ½ mark for parenthesis	2

23	(i) <code>L1.insert(1,100)</code> (ii) <code>S1.isdigit()</code> OR <code>pop()</code> function removes the last value and returns the same. <code>>>>L=[10,20,30,20]</code> <code>>>> L.pop ()</code> 20 The <i>remove()</i> method removes the first matching value from the list. <code>>>>L.remove (20)</code> [10, 30, 20]	1 mark for each correct statement 1 mark for correct difference and 1 mark for suitable example	1+1=2
24	SQL Command to add primary key: <code>select * from student where fee IS NULL</code> OR DDL : CREATE, ALTER DROP DML: INSERT UPDATE DELETE	2 mark for correct Command 1 mark for each correct DDL & DML Categorized commands	2
25	-22 # 756 # -9 # 230 #	½ mark for each correct number and ½ mark for each correct # symbol	2
<u>SECTION C</u>			
26	['DelhiDelhi', 'JaipurJaipur', 'AgraAgra', 'SuratSurat', 'MumbaiMumbai', 'BhopalBhopal']	½ mark for each correct output	3

27	<table border="1"> <tr> <td>(a) <u>Item Name</u></td><td>(b) <u>Dateofstock</u></td><td>(c) <u>Type</u></td><td><u>Sum(Price)</u></td></tr> <tr> <td>White lotus</td><td>13/12/2001</td><td>Double Bed</td><td>80000</td></tr> <tr> <td>Comfort Zone</td><td>22/02/2002</td><td>Baby Cot</td><td>30500</td></tr> <tr> <td>Wood Comfort</td><td>20/02/2003</td><td>Office Table</td><td>43000</td></tr> <tr> <td></td><td></td><td>Sofa</td><td>57500</td></tr> <tr> <td></td><td></td><td>Dining Table</td><td>11500</td></tr> </table>	(a) <u>Item Name</u>	(b) <u>Dateofstock</u>	(c) <u>Type</u>	<u>Sum(Price)</u>	White lotus	13/12/2001	Double Bed	80000	Comfort Zone	22/02/2002	Baby Cot	30500	Wood Comfort	20/02/2003	Office Table	43000			Sofa	57500			Dining Table	11500	1 mark for each correct output.	1*3=3
(a) <u>Item Name</u>	(b) <u>Dateofstock</u>	(c) <u>Type</u>	<u>Sum(Price)</u>																								
White lotus	13/12/2001	Double Bed	80000																								
Comfort Zone	22/02/2002	Baby Cot	30500																								
Wood Comfort	20/02/2003	Office Table	43000																								
		Sofa	57500																								
		Dining Table	11500																								
28	<pre>def SHOWWORD () : c=0 file=open('STORY.TXT','r') line = file.read() word = line.split() for w in word: if len(w)<5: print(w) file.close()</pre> OR <pre>def count H(): f = open ("para.txt" , "r") lines =0 L=f. readlines () for i in L: if i [0]== 'H': lines +=1 print ("No. of lines are: " , lines)</pre>	(½ Mark for opening the file) (½ Mark for reading line and/or splitting) (½ Mark for checking condition) (½ Mark for printing word)	3																								
29	(i) <pre>UPDATE EMP SET Salary=Salary + Salary*0.10 WHERE Allowance IS NOT NULL;</pre> (ii) <pre>SELECT Name, Salary + Allowance AS "Total Salary" FROM EMP;</pre> (iii) <pre>DELETE FROM EMP WHERE Salary>40000;</pre>	1 mark for each correct query	1*3=3																								

30	<pre> N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38] def PUSH1(S,N): S.append(N) def POPE1(S): if S!=[]: return S.pop() else: return None ST=[] for k in N: if k%4==0: PUSH1(ST,k) while True: if ST!=[]: print(POPE1(ST),end=" ") else: break </pre>	1½ marks for each Push and Pop operation	3
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SECTION D

31	(i) 3 (ii) 1 1 2 (iii) <table><tr><th>Dname</th><th>Pname</th></tr><tr><td>PARESH</td><td>Lal singh</td></tr><tr><td>MANISH</td><td>Arjun</td></tr><tr><td>AKASH</td><td>Narender</td></tr><tr><td>KUMAR</td><td>Mehul</td></tr><tr><td>PARESH</td><td>Naveen</td></tr><tr><td>MANISH</td><td>Amit</td></tr></table> (iv) Manish	Dname	Pname	PARESH	Lal singh	MANISH	Arjun	AKASH	Narender	KUMAR	Mehul	PARESH	Naveen	MANISH	Amit	1 mark for each correct output	1*4=4
Dname	Pname																
PARESH	Lal singh																
MANISH	Arjun																
AKASH	Narender																
KUMAR	Mehul																
PARESH	Naveen																
MANISH	Amit																

32	<pre> import csv def createcsv(): f=open("result.csv","w", newline="") w=csv.writer(f) w.writerow([1,'Anil',40,34,90,""]) w.writerow([2,'Sohan',78,34,90,""]) w.writerow([3,'Kamal',40,45,9,""]) f.close() import csv def copycsv(): f=open("result.csv","r") f1=open("final.csv","w",newline="") w1=csv.writer(f1) r=csv.reader(f) for x in r: x[5]=int(x[2])+int(x[3])+int(x[4]) w1.writerow(x) f.close() f1.close() </pre>	½ mark for accepting data correctly ½ mark for opening and closing file ½ mark for writing headings ½ mark for writing row ½ mark for opening and closing file ½ mark for reader object ½ mark for print heading ½ mark for printing data	4
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SECTION E

33	(i) M/s Computer Solutions should install its server in finance block as it is having maximum number of computers. (ii) Any suitable layout (iii) Satellite Link. (iv) Switch. (v) LAN	1 Mark of each correct answer	1*5=5
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34	(i) rb+ Opens a file for both reading and writing in binary format. (+) the file pointer will be at the beginning of the file. wb+ Opens a file for both reading and writing in binary format. Overwrites the existing file If the file exists. If the file does not exist, creates a new file for reading or writing. (ii) <code>def Readfile():</code> <code>s=open("Employee.dat" , "rb+")</code> <code>try:</code> <code>while True:</code> <code>r=pickle.load(s)</code> <code>if r[2]>=20000 and r[2]<=30000:</code> <code>print(r)</code> <code>except:</code> <code>print("end of file")</code> OR (i) In pickle module, dump () method is used to convert (pickling) Python objects for writing data in a binary file Whereas the load () function is used to read data from a binary file or file object. (ii) <pre>import pickle as p L=[] with open('emp.dat','rb') as f: L=p.load(f) for r in L: if r[2]>5000: print("name=",r[0]) print("designation=",r[1]) print("salary=",r[2])</pre> Note: Any other correct logic may be marked	1 mark for <u>each correct</u> difference ½ mark for correctly opening and closing files ½ mark for correct loop ½ mark for correct split 1 mark for correctly reading / writing data ½ mark for printing data	2+3=5
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35	(i) A table can only have one primary key, but it can have multiple candidate key in a database. (any suitable example) (ii) <pre> import mysql.connector mydb=mysql.connector.connect(host="localhost",user="root",passwd="admin",database="SCHOOL") mycursor=mydb.cursor() while 1: ch=int(input("enter -1 to exit / any other no to insert record into student table")) if ch==-1: break eno=int(input("Enter Employee no")) ename=input("Enter Employee Name") edept=input("Enter dept name") sal=int(input("Enter salary")) mycursor.execute("insert into EMP values ('"+str(eno)+"','"+ ename+"','"+ edept + "','"+str(sal)+"'") mydb.commit() for x in mycursor: print(x) </pre> OR (i) Degree: The total number of attributes which in the relation is called the degree of the relation. Cardinality: Total number of rows present in the Table. (any suitable example) (ii) <pre> import mysql.connector mydb=mysql.connector.connect(host="localhost",user="root",passwd="admin",database="SCHOOL") mycursor=mydb.cursor() mycursor.execute("alter table emp add (bonus int(3))") mycursor.execute("desc emp") for x in mycursor: print(x) </pre> Note: Any other correct logic may be marked	½ mark for correct definition ½ mark for correct example ½ mark for importing correct module 1 mark for correct connect() ½ mark for correctly accepting the input 1 ½ mark for correctly displaying data	1+4=5
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(SET 1)
Computer Science (083)
PRE BOARD EXAMINATION 2023-24

Maximum Marks: 70

Time Allowed: 3 hours

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

SECTION A		
1.	State True or False “Dictionaries in python are mutable.”	1
2.	Which of the following is an invalid identifier a)myname b)p9tv c)def d)_new	1
3.	Which one of the following is the function to get list of keys from a dictionary dict in python? a . dict.getkeys() b . dict.getvalues() c . dict.keys() d . None Of These	1
4.	Consider the given expression: True OR NOT False AND True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL	1
5.	Select the correct output of the code: Str="I will Succeed"	1

	<pre>lis=str.split(" ") print(lis[-1])</pre> (a) I (b) will (c) Succeed (d) "I will Succeed"	
6.	Which of the following methods will give the current position of the file pointer? (a)seek() (b)tell() (c)getloc()(d) None of the above	1
7.	Fill in the blank: _____Command is used to change the structure of the table in SQL. (a)update (b)remove (c)alter (d)drop	1
8.	Which of the following commands will delete the row of the table from MYSQL database? (a) DELETE (b) DROPTABLE (c) REMOVETABLE (d) ALTERTABLE	1
9.	Which of the following statement(s) would give an error after executing the following code? <pre>T=(8,9,7,6) # Statement 1 print(T) # Statement2 T=(7,9,7,6) # Statement3 T[1]=8 # Statement4 T=T+(1,2,3) # Statement5</pre> (a) Statement3 (b) Statement4 (c) Statement5 (d) Statement 4 and5	1
10.	Fill in the blank: _____is an attribute or set of attributes eligible to become primary key. (a) PrimaryKey (b) ForeignKey (c) CandidateKey	1

	(d) Alternate Key	
11.	The default mode of opening a file in python (a) append (b) read (c) write (d) both b and c	1
12.	Which of the following can be used as command to get the structure of a table in mysql (a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL	1
13.	Fill in the blank: _____Is the protocol used for server to server mail transfer? (a)VoIP (b)SMTP (c)PPP (d)HTTP	1
14.	What will the following expression be evaluated to in Python? print(2**3**2//8) (a)64.0 (b)64 (c)8 (d)None Of These	1
15.	Which clause is used to apply conditions with GROUP BY (a) WHERE (b) HAVING (c) LIKE (d) None Of These	1
16.	Which function is used to establish connection between python and SQL database? (a) connection (b) connect (c) getconnection (d) getconnect	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A		

	(b) What is the use of POP3?																							
24.	Predict the output of the Python code given below: <pre>def product(L1,L2): p=0 for i in L1: for j in L2: p=p+i*j return p LIST=[1,2,3,4,5,6] l1=[] l2=[] for i in LIST: if(i%2==0): l1.append(i) else: l2.append(i) print(product(l1,l2))</pre> OR Predict the output of the Python code given below: <pre>tuple1 = (33, 24, 44, 42, 54 ,65) list1 =list(tuple1) new_list = [] for i in list1: if i>40: new_list.append(i) new_tuple = tuple(new_list) print(new_tuple)</pre>	2																						
25.	Explain the use of DISTINCT keyword in python with appropriate example OR What is called DDL commands in mysql?Give examples?	2																						
SECTION C																								
26.	a)Consider the following tables -Product and Supplier: Table:Product <table><tr><td>Pid</td><td>pname</td><td>sid</td></tr><tr><td>P1</td><td>pen</td><td>S1</td></tr><tr><td>P2</td><td>ball</td><td>S2</td></tr><tr><td>P3</td><td>pencil</td><td>S3</td></tr></table> Table:Supplier <table><tr><td>Sid</td><td>sname</td></tr><tr><td>S1</td><td>Anmol</td></tr><tr><td>S2</td><td>Aradhya</td></tr><tr><td>S3</td><td>Sunil</td></tr><tr><td>S4</td><td>Vishal</td></tr></table>	Pid	pname	sid	P1	pen	S1	P2	ball	S2	P3	pencil	S3	Sid	sname	S1	Anmol	S2	Aradhya	S3	Sunil	S4	Vishal	1+2
Pid	pname	sid																						
P1	pen	S1																						
P2	ball	S2																						
P3	pencil	S3																						
Sid	sname																							
S1	Anmol																							
S2	Aradhya																							
S3	Sunil																							
S4	Vishal																							

	What will be the output of the following statement? SELECT * FROM product NATURAL JOIN SUPPLIER; b)Write the outputof the queries (i) to (iv) based on the table EMPLOYEE given below <table><tr><td>Empid</td><td>Empname</td><td>Salary</td><td>Deptid</td></tr><tr><td>E1</td><td>Prabhath</td><td>12000</td><td>D1</td></tr><tr><td>E2</td><td>Nikhil</td><td>14000</td><td>D1</td></tr><tr><td>E3</td><td>Devansh</td><td>10000</td><td>D2</td></tr><tr><td>E4</td><td>Debraj</td><td>15000</td><td>D3</td></tr><tr><td>E5</td><td>Aron</td><td>18000</td><td>D1</td></tr></table> (i)SELECT DISTINCT deptid from Employee; (ii)SELECT deptid,count(*),min(salary) from employee GROUP BY deptid HAVING count(deptid)>2; (iii)SELECT empname FROM employee WHERE salary>14000 ORDER BY empname; (iv)SELECT SUM(SALARY) FROM Employee WHERE SALARY BETWEEN 15000 AND 18000;	Empid	Empname	Salary	Deptid	E1	Prabhath	12000	D1	E2	Nikhil	14000	D1	E3	Devansh	10000	D2	E4	Debraj	15000	D3	E5	Aron	18000	D1	
Empid	Empname	Salary	Deptid																							
E1	Prabhath	12000	D1																							
E2	Nikhil	14000	D1																							
E3	Devansh	10000	D2																							
E4	Debraj	15000	D3																							
E5	Aron	18000	D1																							
27.	Write a method COUNTLINES() in python to read lines from text file MYSTORY.TXT and display the count of lines which are starting with letter T Example:if the file content is as follows: Trees are the precious We should protect trees This way we can serve nature The COUNTLINES() function should display output as: The number of lines starting with letter T :2 OR Write a function COUNTOWEL() IN PYTHON which should read each character of a text file CHARACTER.TXT and display the count of vowels Example: If the file content is as follows: Exam is going on well The COUNTOWEL() function should display the output as: 7	3																								
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	BOOK <table><tr><th>Book_id</th><th>Book_name</th><th>Price</th><th>Qty</th><th>Author_id</th></tr><tr><td>1001</td><td>My first C++</td><td>323</td><td>12</td><td>204</td></tr><tr><td>1002</td><td>SQL basics</td><td>462</td><td>6</td><td>202</td></tr><tr><td>1003</td><td>Thunderbolts</td><td>248</td><td>10</td><td>203</td></tr><tr><td>1004</td><td>The tears</td><td>518</td><td>3</td><td>204</td></tr></table> AUTHOR <table><tr><th>Author_id</th><th>Author_name</th><th>Country</th></tr><tr><td>201</td><td>William Hopkins</td><td>Australia</td></tr><tr><td>202</td><td>Anita</td><td>India</td></tr><tr><td>203</td><td>Anna Roberts</td><td>USA</td></tr><tr><td>204</td><td>Brain Brooke</td><td>Italy</td></tr></table> (i) SELECT Author_id, avg(price) from BOOK GROUP BY Author_id; ii) SELECT MAX(price),MIN(price) from BOOK; ii) SELECT Book_name,Author_name,country from BOOK B, AUTHOR A WHERE B.Author_id = A.Author_id AND price>300; iv) SELECT Author_name from AUTHOR WHERE Author_name LIKE “A%”;	Book_id	Book_name	Price	Qty	Author_id	1001	My first C++	323	12	204	1002	SQL basics	462	6	202	1003	Thunderbolts	248	10	203	1004	The tears	518	3	204	Author_id	Author_name	Country	201	William Hopkins	Australia	202	Anita	India	203	Anna Roberts	USA	204	Brain Brooke	Italy	
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30.	A list contains following record of a student: [student_name, age, hostel] Write the following user defined functions to perform given operations on the stack named ‘stud_details’: (i) Push_element() - To Push an object containing name and age of students who live in hostel “Ganga” to the stack (ii) Pop_element() - To Pop the objects from the stack and display them. Also, display “Stack Empty” when there are no elements in the stack. For example: If the lists of customer details are: ["Barsat",17,"Ganga"] ["Ruben", 16,"Kaveri"] ["Rupesh",19,"Yamuna"] The stack should contain	3																																								

	[“Barsat”,17,”Ganga”] The output should be: [“Barsat”,17,”Ganga”] Stack Empty OR A list named as Record contains following format of for students: [student_name, class, city]. Write the following user defined functions to perform given operations on the stack named ‘Record’: (i) Push_record(Record) – To pass the list Record = [['Rahul', 12,'Delhi'], [‘Kohli’,11,'Mumbai'], ['Rohit',12,'Delhi']] and then Push an object containing Student name, Class and City of student belongs to ‘Delhi’ to the stack Record and display and return the contents of stack (ii) Pop_record(Record) – To pass following Record [[“Rohit”,”12”,”Delhi”] [“Rahul”, 12,”Delhi”]] and then to Pop all the objects from the stack and at last display “Stack Empty” when there is no student record in the stack. Thus the output should be: - [“Rohit”,”12”,”Delhi”] [“Rahul”, 12,”Delhi”] Stack Empty			
	SECTION D			
31	Hi-tech Training center, a Mumbai based organization is planning to expand their training institute to Chennai. At Chennai compound, they are planning to have three different blocks for admin, training and accounts related activities. As a network consultant you have to suggest some network related solutions to the organization CHENNAI Office Admin Block Accounts Block Training Block MUMBAI Head Office <table><tr><td>Shortest distance between the blocks are given below: Admin → Accounts 300 meters Accounts 150 meters →training</td><td>Number of computers installed in each block are as follows: Training 150 Block Accounts 30 block</td></tr></table>	Shortest distance between the blocks are given below: Admin → Accounts 300 meters Accounts 150 meters →training	Number of computers installed in each block are as follows: Training 150 Block Accounts 30 block	
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I	<table><tr><td>Admin → Training Mumbai → Chennai office</td><td>200 meters 1300 KM</td></tr></table>	Admin → Training Mumbai → Chennai office	200 meters 1300 KM	Admin Block 20	
Admin → Training Mumbai → Chennai office	200 meters 1300 KM				
i)	Suggest the most suitable block to house the server at Chennai block for best and effective connectivity.	1			
ii)	Suggest the type of network for the new training institute and draw the cable layout for the Chennai office	1			
iii)	Suggest a hardware/software that would provide the data security for entire network of Chennai region.	1			
iv)	Suggest a device that shall be needed to provide wireless internet access to all smart phones/laptop users in Chennai office.	1			
v)	Suggest the protocol used for video conferencing between Chennai office and Mumbai office	1			
32.	(a) Write the output of the code given below: <pre>val=4 def findval(m,n=10): val=0 val=val+m*n a=10 b=20 findval(a,b) print(val,end="-") findval(a) print(val,end="-")</pre> (b) The code given below inserts the following record in the table Employee: Empid – integer Name – string salary-float Note the following to establish connectivity between Python and MYSQL: ☐ Username is root ☐ Password is tiger ☐ The table exists in a MYSQL database named Empolyee. ☐ The details (Empid, Name, salary) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to form the cursor object Statement 2 – to execute the command that inserts the record in the table Employee. Statement 3- to add the record permanently in the database	2+3			

```

import mysql.connector
from mysql.connector import Error
connection = mysql.connector.connect(host='localhost',
                                     database='Employee',
                                     user='root',
                                     password='tiger')

cursor=_____#STATEMENT1
empid=int(input("enter Empid"))
name=input("enter name")
salary=float(input("ENTER SALARY"))
result = _____#STATEMENT2
_____#STATEMENT3

```

OR

(a) Predict the output of the code given below:

```
s="PREboardCS*2022!"
```

```
j=2
```

```
for i in s.split('*'):
```

```
    k = i [ : j ]
```

```
    if k.isupper():
```

```
        j=j+1
```

```
    elif k.isdigit():
```

```
        j=j+2
```

```
    else:
```

```
        j=j+3
```

```
print(s [ j : : j ] )
```

(b) The code given below reads the following record from the table named Employee and displays only those records who have Salary greater than 25000:

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named Employee.

Write the following missing statements to complete the code: Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of those Employees who have salary greater than 25000.

Statement 3- to read the complete result of the query (records whose salary greater than 25000) into the object named records, from the table Employee in the database.

```
import mysql.connector
```

	<pre> connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') cursor=_____#STATEMENT1 _____#STATEMENT2 records = _____#STATEMENT3 for row in records: print("Empid",row[0],end=" ") print("name",row[1],end=" ") print("salary",row[2],end=" ") print() </pre>	
33.	What is a csv file? Write a Program in Python that defines and calls the following user defined functions: ❖ INSERT() – To accept and add data of a student to a CSV file ‘student.csv’. Each record consists of a list with field elements as sid, name and marksto store student id, name and marks respectively. ❖ COUNTSTUDENTS() – To count the number of records present in theCSV file named‘student.csv’. OR What is the purpose of delimiter? Write a Program in Python that defines and calls the following user defined functions: ❖ add() – To accept and add data of a product to a CSV file ‘product.csv’. Each record consists of a list with elements as pid, pnameand priceto storeproduct id, product name and pricerrespectively. ❖ search()- To display the records of the products whose price is more than5000.	5
	SECTION E	
34.	Rahul created following table TRAVEL to store the travel details	1+1+2

TNO	TNAME	TDATE	KM	VTTYPE	NOP
101	NANDA	25-11-2019	100	VOLVO BUS	32
103	SANAL	09-12-2019	210	ORDINARY BUS	45
105	RAMU	06-12-2019	300	VOLVO BUS	40
102	SOMU	25-12-2019	120	AC DELEX BUS	35
107	NEHA	05-11-2019	250	ORDINARY BUS	25
104	SNEHA	06-11-2019	300	VOLVO BUS	32
106	KIRAN	12-12-2019	125	VOLVO BUS	43

Based on the data given above answer the following questions:

- (i) Identify the most appropriate column, which can be considered as Primary key.
- (ii) If 3 columns are added and 1 rows are deleted from the table TRAVEL, what will be the new degree and cardinality of the above table?
- (iii) Write the statements to:

a. Insert the following record into the table

110	BIMAL	28-11-2022	200	VOLVO BUS	40
-----	-------	------------	-----	-----------	----

b. Increase KM travelled by 10 if the VTYPE is VOLVO.

OR (Option for part iii only)

(iii) Write the statements to:

- a. Delete the record of travel of traveler NANDA.
- b. Add a column MILEAGE in the table with data type as integer

35. Biplab is a Python programmer. He has written a code and created a binary file STUDENT.DAT which has structure (admission_number, Name, Percentage). He has written an incomplete function *countrec()* in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%. As a Python expert, help him to complete the following code based on the requirement given above:

```
import _____#statement1
def countrec():
    _____#Statement2
    records=_____#Statement3
    count=0
    for record in records:
        if(_____):#Statement4
            count=count+1
```

	<pre>print("ID",record[0]) print("NAME",record[1]) print("PERCENTAGE",record[2]) print("No of students with perentage above 75",count)</pre>	
(i)	Which module should be imported in the program? (Statement1)	1
(ii)	Write the correct statement required to open a file named STUDENT.DAT in binary mode (Statement2)	1
(iii)	Which statement should Biplab fill in Statement 3 to read the data from the binary file, STUDENT.DAT and in Statement 4 to check the percentage?	
	OR	2
	Explain various functions used in writing rows in csv file.	

(SET 1)

Computer Science (083)

PRE BOARD EXAMINATION
MARKING SCHEME

Maximum Marks:70

Time Allowed: 3 hours

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part only.
8. All programming questions are to be answered using Python Language only.

SECTION A		
1.	State True or False “Dictionaries in python are mutable.” Ans:True	1
2.	Which of the following is an invalid identifier a)myname b)p9tv c)def d)_new Ans:c def	1
3.	Which one of the following is the function to get list of keys from a dictionary dict in python? a . dict.getkeys() b . dict.getvalues() c . dict.keys() d . None Of These Ans: c dict.keys()	1
4.	Consider the given expression: True OR NOT False AND True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL Ans:A True	1
5.	Select the correct output of the code: Str="I will Succeed"	1

	<pre>lis=str.split(" ") print(lis[-1])</pre> (a) I (b) will (c) Succeed (d) "I will Succeed" ANS:c Succeed	
6.	Which of the following methods will give the current position of the file pointer? (a)seek() (b)tell() (c)getloc() (d) None of the above ANS:b tell()	1
7.	Fill in the blank: _____command is used to change the structure of the table in SQL. (a)update (b)remove (c)alter (d)drop ANS: c alter	1
8.	Which of the following commands will delete the contents of the table from MYSQL database? (a) DELETE (b) DROPTABLE (c) REMOVETABLE (d) ALTERTABLE ANS:a DELETE	1
9.	Which of the following statement(s) would give an error after executing the following code? <pre>T=(8,9,7,6) print(T) T=(7,9,7,6) T[1]=8 T=T+(1,2,3)</pre> # Statement 1 # Statement2 # Statement3 # Statement4 # Statement5 (a) Statement3 (b) Statement4 (c) Statement5 (d) Statement 4 and5 ANS:b statement 4	1

10.	Fill in the blank: _____ is an attribute or set of attributes eligible to become primary key. (a) PrimaryKey (b) ForeignKey (c) CandidateKey (d) Alternate Key ANS:c candidate key	1
11.	The default mode of opening a file in python (a) append (b) read (c) write (d) both b and c ANS:b read	1
12.	Which of the following can be used as command to get the structure of a table in mySQL (a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL ANS:a DESCRIBE	1
13.	Fill in the blank: _____ Is the protocol used for server to server mail transfer? (a)VoIP (b)SMTP (c)PPP (d)HTTP ANS:b SMTP	1
14.	What will the following expression be evaluated to in Python? print(2**3**2//8) (a)64.0 (b)64 (c)8 (d)None Of These ANS: b 64	1
15.	Which clause is used to apply conditions with GROUP BY (a) WHERE (b) HAVING (c) LIKE (d) None Of These ANS:b HAVING	1

16.	Which function is used to establish connection between python and SQL database? (a) connection (b) connect (c) getconnection (d) getconnect ANS:b connect	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17.	Assertion (A):-Functions in a program increases the modularity and readability of the program Reasoning (R):-Usage of Functions increases the execution speed of the program ANS: c A is True but R is False	1
18.	Assertion (A): If a file is opened in binary mode its contents are viewed as a sequence of bytes. Reason (R): A text file also can be opened in binary mode ANS: b Both A and R are true and R is not the correct explanation for A	1
SECTION B		
19.	Rahul has written a code to input a number and return its reverse. His code is having errors. Rewrite the correct code and underline the corrections made. <pre>def reverse() n=int(input("Enter number :: ")) rev=0 while(num>0): r=num%10 rev=rev*10+r num=num//10 return rev</pre> ANS: <pre><u>def reverse():</u> n=int(input("Enter number :: ")) rev=0 while(num>0): <u>r=num%10</u> <u>rev=rev*10+r</u> <u>num=num//10</u> return rev</pre> ½ marks for each correction	2

ANS:108

OR

Predict the output of the Python code given below:

```
tuple1 = (33, 24, 44, 42, 54, 65)
```

```
list1 = list(tuple1)
```

```
new_list = []
```

```
for i in list1:
```

```
    if i > 40:
```

```
        new_list.append(i)
```

```
new_tuple = tuple(new_list)
```

```
print(new_tuple)
```

ANS: (44, 42, 54, 65)

25. Explain the use of DISTINCT keyword in python with appropriate example

ANS: DISTINCT keyword discards duplicate values

1 mark for explanation and 1 mark for example

OR

What is called DDL commands in MySQL? Give examples?

DDL-DATA DEFINITION LANGUAGE

EXAMPLE: CREATE, DROP, ALTER

2

SECTION C

26. a) Consider the following tables - Product and Supplier:

Table: Product

Pid	pname	sid
P1	pen	S1
P2	ball	S2
P3	pencil	S3

Table: Supplier

Sid	sname
S1	Anmol
S2	Aradhya
S3	Sunil
S4	Vishal

What will be the output of the following statement?

```
SELECT * FROM product NATURAL JOIN SUPPLIER;
```

ANS:

Pid	pname	sid	Sname
P1	Pen	S1	Anmol
P2	Ball	S2	Aradhya
P3	Pencil	S3	Sunil

b) Write the output of the queries (i) to (iv) based on the table EMPLOYEE given below

Empid	Empname	Salary	Deptid
-------	---------	--------	--------

1+2

E1	Prabhath	12000	D1
E2	Nikhil	14000	D1
E3	Devansh	10000	D2
E4	Debraj	15000	D3
E5	Aron	18000	D1

(i)SELECT DISTINCT deptid from Employee;

(ii)SELECT deptid,count(*),min(salary) from employee GROUP BY deptid
HAVING count(deptid)>2;

(iii)SELECT empname FROM employee WHERE salary>14000 ORDER BY
empname;

(iv)SELECT SUM(SALARY) FROM Employee WHERE SALARY
BETWEEN 15000 AND 18000;

ANS:(i)

Deptid
D1
D2
D3

1/2 marks

(ii)

Deptid	count(*)	min(salary)
D1	3	12000

1/2 marks

(iii)

Empname
Aron
Debraj

1/2 marks

(iv)

Sum(Salary)
33000

1/2 marks

27. Write a method COUNTLINES() in python to read lines from text file MYSTORY.TXT and display the count of lines which are starting with letter T
Example:if the file content is as follows:
Trees are the precious
We should protect trees
This way we can serve nature

The COUNTLINES() function should display output as:
The number of lines starting with letter T :2

ANS:

def COUNTLINES():

fp=open("MYSTORY.TXT","r")

3

	<pre>count=0 lines=fp.readlines() for line in lines: if(line[0]=="T"): count=count+1 print("The number of lines starting with letter T :",count)</pre> OR Write a function COUNTOWEL() IN PYTHON which should read each character of a text file CHARACTER.TXT and display the count of vowels Example: If the file content is as follows: Exam is going on well The COUNTOWEL() function should display the output as: 7 ANS: <pre>def COUNTVOWELS(): fp=open("CHARACTER.TXT","r") count=0 characters=fp.read() characters=characters.lower() for character in characters: if(chatacter in ['a','e','i','o','u']): count=count+1 print(count)</pre>																																									
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ii) SELECT MAX(price),MIN(price) FROM BOOK;
 ii) SELECT Book_name, Author_name, country FROM BOOK B,
 AUTHOR A WHERE B.Author_id = A.Author_id AND price > 300;
 iv) SELECT Author_name FROM AUTHOR WHERE Author_name LIKE
 "A%";

ANS:

(i)

Author_id	Avg(price)
204	420.5
202	462
203	248

(ii)

MAX(price)	MIN(price)
518	248

(iii)

Book_name	Author_name	Country
My First C++	Brain&Brooke	Italy
SQL Basics	Anita	India
The Tears	Brain&Brooke	Italy

(iv)

Author_name
Anita
Anna Roberts

29. Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'evenlist' that stores even numbers in the list.

For example:

If L contains [1,2,3,4,5,6,7,8]

The evenlist will have - [2,4,6,8]

ANS:

```
def EVEN_LIST(L):
    evenlist=[]
    for i in L:
        if(i%2==0):
            evenlist.append(i)
```

3

	return evenlist	
30.	A list contains following record of a student: [student_name, age, hostel] Write the following user defined functions to perform given operations on the stack named 'stud_details': (i) Push_element() - To Push an object containing name and age of students who live in hostel "Ganga" to the stack (ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack. For example: If the lists of customer details are: ["Barsat", 17, "Ganga"] ["Ruben", 16, "Kaveri"] ["Rupesh", 19, "Yamuna"] The stack should contain ["Barsat", 17, "Ganga"] The output should be: ["Barsat", 17, "Ganga"] Stack Empty ANS: <pre>stud_details=[] def push_element(lis): if(lis[2]=="Ganga"): stud_details.append([lis[0],lis[1]]) def pop_element(): while(len(stud_details)>0): print(stud_details.pop()) print("Stack Empty")</pre> OR <pre>def Push_record(): # (1½ mark for correct push element) for i in List: if i[2]=="Delhi": Record.append(i) print(Record) def Pop_record(): # (1½ mark for correct push element) while True: if len(Record)==0: print('Empty Stack') break</pre>	3

	else: print(Record.pop()) Push(Dict_Product) (1 mark for correct function header 1 mark for correct loop ½ mark for correct If statement ½ mark for correct display of count)											
	SECTION D											
31	HiTech Training center, a Mumbai based organization is planning to expand their training institute to Chennai. At Chennai compound, they are planning to have three different blocks for admin, training and accounts related activities. As a network consultant you have to suggest some network related solutions to the organization CHENNAI Office Admin Block Accounts Block Training Block MUMBAI Head Office <table><tr><td>Shortest distance between the blocks are given below:</td><td>Number of computers installed in each block are as follows:</td></tr><tr><td>Admin → Accounts 300 meters</td><td>Training Block 150</td></tr><tr><td>Accounts → training 150 meters</td><td>Accounts block 30</td></tr><tr><td>Admin → Training 200 meters</td><td>Admin Block 20</td></tr><tr><td>Mumbai → Chennai office 1300 KM</td><td></td></tr></table> i) Suggest the most suitable block to house the server at Chennai block for best and effective connectivity. ii) Suggest the type of network for the new training institute and draw the cable layout for the Chennai office iii) Suggest a hardware/software that would provide the data security for entire network of Chennai region. iv) Suggest a device that shall be needed to provide wireless internet access to all smart phones/laptop users in Chennai office. v) Suggest the protocol used for video conferencing between Chennai 1 1 1 1 1	Shortest distance between the blocks are given below:	Number of computers installed in each block are as follows:	Admin → Accounts 300 meters	Training Block 150	Accounts → training 150 meters	Accounts block 30	Admin → Training 200 meters	Admin Block 20	Mumbai → Chennai office 1300 KM		
Shortest distance between the blocks are given below:	Number of computers installed in each block are as follows:											
Admin → Accounts 300 meters	Training Block 150											
Accounts → training 150 meters	Accounts block 30											
Admin → Training 200 meters	Admin Block 20											
Mumbai → Chennai office 1300 KM												

	office and Mumbai office ANS: i) Training Block ii) LAN iii) FIREWALL iv) ACCESS POINT v) H.323 or SIP	
32.	(a) Write the output of the code given below: <pre>val=4 def findval(m,n=10): val=0 val=val+m*n a=10 b=20 findval(a,b) print(val,end="-") findval(a) print(val,end="-")</pre> ANS: 4-4- (b) The code given below inserts the following record in the table Employee: Empid – integer Name – string salary – float Note the following to establish connectivity between Python and MYSQL: ☐ Username is root ☐ Password is tiger ☐ The table exists in a MYSQL database named Employee. ☐ The details (Empid, Name, salary) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to form the cursor object Statement 2 – to execute the command that inserts the record in the table Employee. Statement 3- to add the record permanently in the database <pre>import mysql.connector from mysql.connector import Error connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') cursor=_____#STATEMENT1 empid=int(input("enter Empid"))</pre>	2+3

```

name=input("enter name")
salary=float(input("ENTER SALARY"))
result = _____#STATEMENT2
_____#STATEMENT3

```

ANS:

```

STATEMENT1:connection.cursor()
STATEMENT2:cursor.execute("insert into employee
values(%s,%s,%s)",(empid,name,salary))

STATEMENT3:connection.commit()

```

OR

(a) Predict the output of the code given below:

```
s="PREboardCS*2022!"
```

```
j=2
```

```
for i in s.split('*'):
```

```
    k = i [ : j ]
```

```
    if k.isupper():
```

```
        j=j+1
```

```
    elif k.isdigit():
```

```
        j=j+2
```

```
    else:
```

```
        j=j+3
```

```
    print(s [ j : : j ] )
```

ANS:

brS0!

(b) The code given below reads the following record from the table named Employee and displays only those records who have Salary greater than 25000:

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named Employee.

Write the following missing statements to complete the code: Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of those Employees who have salary greater than 25000.

Statement 3- to read the complete result of the query (records whose salary greater than 25000) into the object named records, from the table Employee in the database.

```
import mysql.connector
```

```

connection = mysql.connector.connect(host='localhost',
                                     database='Employee',
                                     user='root',
                                     password='tiger')

```

```
cursor=_____#STATEMENT1
```

```
_____#STATEMENT2
```

	<pre> records = _____#STATEMENT3 for row in records: print("Empid",row[0],end=" ") print("name",row[1],end=" ") print("salary",row[2],end=" ") print() ANS: Statement 1 :connection.cursor() Statement 2 :cursor.execute("select * from employee where salary>25000") Statement 3:cursor.fetchall() </pre>	
33.	What is a csv file? Write a Program in Python that defines and calls the following user defined functions: ❖ INSERT() – To accept and add data of a student to a CSV file ‘student.csv’. Each record consists of a list with field elements as sid, name and marksto store student id, name and marks respectively. ❖ COUNTSTUDENTS() – To count the number of records present in theCSV file named‘student.csv’. ANS: <pre> import csv def INSERT(): studlist=[] while(choice=="y"): sid=int(input("Enter Student id")) name=input("Enter name") marks=input("Enter Marks") choice=input("Enter y to continue or press any to exit") student=[sid,name,marks] studlist.append(student) file=open("student.csv","w") writer=csv.writer(file) writer.writerows(studlist) def COUNTSTUDENTS(): file=open("student.csv","r") reader=csv.reader(file) print("No of students",len(reader)) </pre> OR What is the purpose of delimiter? Write a Program in Python that defines and calls the following user defined functions: ❖ add() – To accept and add data of a product to a CSV file ‘product.csv’. Each record consists of a list with elements as pid, pnameand priceto storeproduct id, product name and pricerrespectively. ❖ search()- To display the records of the products whose price is more than5000.	5

```

ANS:
import csv
def add():
    prodlist=[]
    while(choice=="y"):
        pid=int(input("Enter product id"))
        pname=input("Enter name")
        price=input("Enter price")
        choice=input("Enter y to continue or press any to exit")
        product=[pid,pname,price]
        prodlist.append(product)
    file=open("product.csv","w")
    writer=csv.writer(file)
    writer.writerows(prodlist)
def search():
    file=open("product.csv","r")
    reader=csv.reader(file)
    for record in reader:
        if(record[2]>5000):
            print("Product id",record[0])
            print("Product name",record[1])
            print("Product price",record[2])

```

1 mark for correct explanation of question

½ marks for correctly opening the file

½ marks for creating reader and writer objects

Full marks for correct code

SECTION E

34. Rahul created following table TRAVEL to store the travel details

1+1+2

TNO	TNAME	TDATE	KM	VTTYPE	NOP
101	NANDA	25-11-2019	100	VOLVO BUS	32
103	SANAL	09-12-2019	210	ORDINARY BUS	45
105	RAMU	06-12-2019	300	VOLVO BUS	40
102	SOMU	25-12-2019	120	AC DELEX BUS	35
107	NEHA	05-11-2019	250	ORDINARY BUS	25
104	SNEHA	06-11-2019	300	VOLVO BUS	32
106	KIRAN	12-12-2019	125	VOLVO BUS	43

Based on the data given above answer the following questions:

- Identify the most appropriate column, which can be considered as Primary key.
- If 3 columns are added and 1 row is deleted from the table TRAVEL,

	what will be the new degree and cardinality of the above table? (iii) Write the statements to: (a) Insert the following record into the table <table><tr><td>110</td><td>BIMAL</td><td>28-11-2022</td><td>20</td><td>VOLVO BUS</td><td>40</td></tr><tr><td></td><td></td><td></td><td>0</td><td></td><td></td></tr></table> (b) Increase KM travelled by 10 if the VTYPE is VOLVO. ANS: a)(i)TNO (ii)degree-9 cardinality-6 iii)a.INSERT INTO TRAVEL VALUES(110,'BIMAL','28-11-2022',200,'VOLVOBUS',40) b.UPDATE TRAVEL SET KM=KM+10 WHERE VTYPE='VOLVO BUS' OR (Option for part iii only) (iii) Write the statements to: a. Delete the record of travel of traveler NANDA. b. Add a column MILEAGE in the table with data type as integer ANS: a)DELETE FROM TRAVEL WHERE TNAME='NANDA' b)ALTER TABLE TRAVEL ADD(MILEAGE int)	110	BIMAL	28-11-2022	20	VOLVO BUS	40				0			
110	BIMAL	28-11-2022	20	VOLVO BUS	40									
			0											
35.	Biplab is a Python programmer. He has written a code and created a binary file STUDENT.DAT which has structure (admission_number, Name, Percentage). He has written an incomplete function <i>countrec()</i> in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%.As a Python expert, help him to complete the following code based on the requirement given above: <pre>import _____#statement1 def countrec(): _____#Statement2 records=_____#Statement3 count=0 for record in records: if(_____):#Statement4 count=count+1 print("ID",record[0]) print("NAME",record[1]) print("PERCENTAGE",record[2]) print("No of students with perentage above 75",count)</pre> (i) Which module should be imported in the program? (Statement1) (ii) Write the correct statement required to open a file named STUDENT.DAT. in binary mode (Statement2)													

	(iii) Which statement should Biplab fill in Statement 3 to read the data from the binary file, STUDENT.DAT and in Statement 4 to check the percentage?	1
	ANS	
	(i) pickle	2
	(ii) fp=open("STUDENT.DAT","rb")	
	(iii) records=pickle.load(fp)	
	if(record[2]>75)	

TIME: 03 HOURS

M.M.: 70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 02 Long Answer type questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION A		
1.	Assign a tuple containing an Integer?	(1)
2.	Which of the following data type in Python supports concatenation? a) int b) float c) bool d) str	(1)
3.	What will be output of the following code: d1={1:2,3:4,5:6} d2=d1.popitem() print(d2) a){1:2} b){5:6} c)(1,2) d)(5,6)	(1)
4.	The correct output of the given expression is: True and not False or False (a)False (b)True(c)None (d) Null	(1)
5.	Fill in the blank: _____ Command is used to add a new column in a table in SQL. a)update b)remove c)alter d)drop	(1)
6.	Consider the Python statement: f.seek(10, 1) Choose the correct statement from the following: (a) File pointer will move10 byte in forward direction from beginning of the file (b) File pointer will move 10 byte in forwarddirection from end of the file (c) File pointer will move 10 byte inforwarddirection from current location (d) File pointer will move 10 byte in backward direction from current location	(1)
7.	Choose correct SQL query which is expected to delete all rows of a table emp without deleting its structure. a) DELETE TABLE; b) DROP TABLE emp; c) REMOVE TABL emp; d) DELETE FROM emp;	(1)
8.	Which of the following is NOT a DML Command? (a)Insert (b)Update (c)Drop (d)Delete	(1)

9.	Select the correct output to the code: <pre>a="Year2022atallthe best" a=a.split('a') b=a[0]+"-"+a[1]+"-"+a[3] print (b)</pre> a) Year-0-atAllthebest b) Ye-r2022-llthe best c) Year-022-at Allthebest d) Year-0-atallthebest	(1)
10.	Which of the following statement(s) would give an error during execution? <pre>S="Lucknow is the Capital of UP " #Statement1 print(S) #Statement2 S[4]='\$' #Statement3 S="Thankyou" #Statement4 S=S+"Thankyou" #Statement5 (a)Statement3 (b)Statement4 (c)Statement5 (d)Statement4and5</pre>	
11.	Which of the following function returns a list datatype? a) d=f.read() b) d=f.read(10) c) d=f.readline() d)d=f.readlines()	(1)
12.	Select the correct statement,with reference to SQL: a) Aggregate functions ignore NULL b) Aggregate functions consider NULL as zero or False c) Aggregate functions treat NULL as a blank string d) NULL can be written as 'NULL' also.	(1)
13.	Fill in the blank: The _____is a mail protocol used to retrieve mail from a remote server to a local email client. (a)VoIP (b) FTP (c)POP3 (d)HTTP	(1)
14.	What will be the value of y when following expression be evaluated in Python? <pre>x=10.0 y=(x<100.0) and x>=10</pre> (a)110 (b)False (c)Error (d)True	(1)
15.	All aggregate functions except _____ignore null values in their input collection. (a) Count(attribute) (b) Count(*) (c) Avg (d) Sum	(1)
16.	Which of the following method is used to create a connection between the MySQL database and Python? a) (a) connector () (b) connect () (c) con () (d)cont()	(1)

	Q 17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a) Both A and R are true and R is the correct explanation for A b) Both A and R are true and R is not the correct explanation for c) A is True but R is False d) A is false but R is True	
17.	Assertion (A):-The default arguments can be skipped in the function call. Reason (R):-The function argument will take the default values even if the values are supplied in the function call	(1)
18.	Assertion(A):A tuple can be concatenated to a list,but a list cannot be concatenated to a tuple. Reason(R):Lists are mutable and tuples are immutable in Python.	(1)
SECTION B		
19.	Ravi has written a function to print Fibonacci series for first 10 element. His code is having errors. Rewrite the correct code and underline the corrections made. Some initial elements of Fibonacci series are: <pre>def fibonacci() first=0 second=1 print(("first no. is ", first) print("secondno.is,second) for a in range (1,9): third=first+second print(third) first,second=second,third fibonacci()</pre>	(2)
20.	What possible outputs (s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO. <pre>import random AR=[20,30,40,50,60,70] FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO+1): print(AR[K],end="##")</pre> (i)10#40#70# (ii)30#40#50# (iii)50#60#70# (iv)40#50#70#	(2)
21.	(a) Given is a Python string declaration: myexam="RussiaUkrain" Write the output of : print(myexam[-2:2:-2]) (b) Write the output of the code given below: D1={"sname":"Aman","age":26} D1['age']=27 D1['address']="Delhi" print(D1.items())	(1) (1)

22.	Explain the use of 'Foreign Key' in a Relational Database. Give an example to support your answer.	(2)
23.	(a) Write the full forms of the following: (i) POP (ii) HTTPS (b) Write two points of difference between Circuit Switching and Packet Switching	(1) (1)
24.	Predict the output of the Python code given below: <pre> value = 50 def display(N): global value value = 25 if N%7==0: value=value+N else: value=value-N print(value, end="#") display(20) print(value) </pre> OR <pre> def Display(str): m="" for i in range(0,len(str)): if(str[i].isupper()): m=m+str[i].lower() elif str[i].islower(): m=m+str[i].upper() else: if i%2==0: m=m+str[i-1] else: m=m+"#" print(m) Display('Fun@World2.0') </pre>	(2)

25.	Consider the following two commands with reference to a table, named Students, having a column named Section: (a) Select count(Section)from Students; (b) Select count(*)from Students; If these two commands are producing different results, (i) What may be the possible reason? (ii) Which command,(a)or(b),might be giving higher value? OR Name the aggregate functions which work only with numeric data, and those that work with any type of data.	(2)
-----	--	-----

SECTION C

26.	(a)Consider the following tables– EMPLOYEES AND DEPARTMENT TABLE : EMPLOYEES <table> <tr> <th>ENO</th><th>ENAME</th><th>DOJ</th><th>DNO</th></tr> <tr> <td>E1</td><td>NUSRAT</td><td>2001-11-21</td><td>D3</td></tr> <tr> <td>E2</td><td>KABIR</td><td>2005-10-25</td><td>D1</td></tr> </table> TABLE : DEPARTMENT <table> <tr> <th>DNO</th><th>DNAME</th></tr> <tr> <td>D1</td><td>ACCOUNTS</td></tr> <tr> <td>D2</td><td>HR</td></tr> <tr> <td>D3</td><td>ADMIN</td></tr> </table> What will be the output of the following statement? SELECT ENAME, DNAME FROM EMPLOYEES,DEPARTMENT WHERE EMPLOYEE.DNO=DEPARTMENT.DNO;	ENO	ENAME	DOJ	DNO	E1	NUSRAT	2001-11-21	D3	E2	KABIR	2005-10-25	D1	DNO	DNAME	D1	ACCOUNTS	D2	HR	D3	ADMIN	(1)
ENO	ENAME	DOJ	DNO																			
E1	NUSRAT	2001-11-21	D3																			
E2	KABIR	2005-10-25	D1																			
DNO	DNAME																					
D1	ACCOUNTS																					
D2	HR																					
D3	ADMIN																					

b)Write the output of the queries(i)to(iv) based on the tables given below	Table: ITEM <table> <tr> <th>ID</th><th>Item_Name</th><th>Manufacturer</th><th>Price</th></tr> <tr> <td>PC01</td><td>Personal Computer</td><td>ABC</td><td>35000</td></tr> <tr> <td>LC05</td><td>Laptop</td><td>ABC</td><td>55000</td></tr> <tr> <td>PC03</td><td>Personal Computer</td><td>XYZ</td><td>32000</td></tr> <tr> <td>PC06</td><td>Personal Computer</td><td>COMP</td><td>37000</td></tr> <tr> <td>LC03</td><td>Laptop</td><td>PQR</td><td>57000</td></tr> </table> Table: CUSTOMER <table> <tr> <th>C_ID</th><th>CName</th><th>City</th><th>ID</th></tr> <tr> <td>01</td><td>N Roy</td><td>Delhi</td><td>LC03</td></tr> <tr> <td>06</td><td>R Singh</td><td>Mumbai</td><td>PC03</td></tr> <tr> <td>12</td><td>R Pandey</td><td>Delhi</td><td>PC06</td></tr> <tr> <td>15</td><td>C Sharma</td><td>Delhi</td><td>LC03</td></tr> <tr> <td>16</td><td>K Agarwal</td><td>Bangalore</td><td>PC01</td></tr> </table> i) SELECT ITEM_NAME, MAX(PRICE), COUNT(*) FROM ITEM GROUP BY ITEM_NAME; ii) SELECT CNAME,MANUFACTURER FROM ITEM,CUSTOMER WHERE ITEM.ID=CUSTOMER.ID; iii) SELECT ITEM_NAME, PRICE*100 FROM ITEM WHERE MANUFACTURER="ABC"; (iv) SELECT DISTINCT CITY FROM CUSTOMER;	ID	Item_Name	Manufacturer	Price	PC01	Personal Computer	ABC	35000	LC05	Laptop	ABC	55000	PC03	Personal Computer	XYZ	32000	PC06	Personal Computer	COMP	37000	LC03	Laptop	PQR	57000	C_ID	CName	City	ID	01	N Roy	Delhi	LC03	06	R Singh	Mumbai	PC03	12	R Pandey	Delhi	PC06	15	C Sharma	Delhi	LC03	16	K Agarwal	Bangalore	PC01	(2)
ID	Item_Name	Manufacturer	Price																																															
PC01	Personal Computer	ABC	35000																																															
LC05	Laptop	ABC	55000																																															
PC03	Personal Computer	XYZ	32000																																															
PC06	Personal Computer	COMP	37000																																															
LC03	Laptop	PQR	57000																																															
C_ID	CName	City	ID																																															
01	N Roy	Delhi	LC03																																															
06	R Singh	Mumbai	PC03																																															
12	R Pandey	Delhi	PC06																																															
15	C Sharma	Delhi	LC03																																															
16	K Agarwal	Bangalore	PC01																																															

27.	Write a method SHOWLINES() in Python to readlines from text file ‘TESTFILE.TXT’and display the lines which do not contain 'ke'. Example: If the file content is as follows: An apple a day keeps the doctor away. We all pray for everyone’s safety. A marked difference will come in our country. The SHOWLINES() function should display the output as: We all pray for everyone’s safety. OR Write a function in python to count the number of lines in a text file ‘Country.txt’ which are starting with an alphabet ‘W’ or ‘H’. For example,If the file contents are as follows: Whose woods these are I think I know. His house is in the village though; He will not see me stopping here To watch his woods fill up with snow. The output of the function should be: W or w:1 H or h : 2	(3)																														
28.	Consider the following tables GAMES. Give outputs for SQL queries (i)to(iv). Table:GAMES <table><tr><th>GCode</th><th>GameName</th><th>Number</th><th>PrizeMoney</th><th>ScheduleDate</th></tr><tr><td>101</td><td>CaromBoard</td><td>2</td><td>5000</td><td>23-Jan-2004</td></tr><tr><td>102</td><td>Badminton</td><td>2</td><td>12000</td><td>12-Dec-2003</td></tr><tr><td>103</td><td>TableTennis</td><td>4</td><td>8000</td><td>14-Feb-2004</td></tr><tr><td>105</td><td>Chess</td><td>2</td><td>9000</td><td>01-Jan-2004</td></tr><tr><td>108</td><td>LawnTennis</td><td>4</td><td>25000</td><td>19-Mar-2004</td></tr></table> (i) SELECT COUNT(DISTINCT Number) FROM GAMES; (ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES; (iii) SELECT SUM(PrizeMoney) FROM GAMES; (iv) SELECT * FROM GAMES WHERE PrizeMoney>12000; (b)Write the command to view all the databases in an RDBMS.	GCode	GameName	Number	PrizeMoney	ScheduleDate	101	CaromBoard	2	5000	23-Jan-2004	102	Badminton	2	12000	12-Dec-2003	103	TableTennis	4	8000	14-Feb-2004	105	Chess	2	9000	01-Jan-2004	108	LawnTennis	4	25000	19-Mar-2004	(2+1)
GCode	GameName	Number	PrizeMoney	ScheduleDate																												
101	CaromBoard	2	5000	23-Jan-2004																												
102	Badminton	2	12000	12-Dec-2003																												
103	TableTennis	4	8000	14-Feb-2004																												
105	Chess	2	9000	01-Jan-2004																												
108	LawnTennis	4	25000	19-Mar-2004																												
29.	Write a function in PythonConvert() to replaces elements having even values with its half and elements having odd values with twice its value in a list. eg: if the list contains 3,4,5,16,9 then rearrange the list as 6,2,10,8,18	(3)																														
30.	Write a function in Python PUSH_IN(L), where L is a list of numbers. From this list, push all numbers which are multiple of 3 into a stack which is implemented by using another list. OR Write a function in Python, Push(KItem),where KItem is a dictionary containing the details of Kitchen items– {Item:price}. The function should push the names of those items in a stack which have price less than 100. Also display the average price of elements pushed into the stack.	(3)																														

	For example: If the dictionary contains the following data: {"Spoons":116,"Knife":50,"Plates":180,"Glass":60} The stack should contain Glass Knife The output should be: The average price of an item is 55.0	
	SECTION D	
31.	Tushar is a Python programmer. He has written a code and created a binary file record.dat with employeeid, ename and salary. The file contains 10 records. He now has to delete a record based on the employee id entered by the user. For this purpose, he creates a temporary file, named temp.dat, to store all the records other than the record to be deleted. If the employee id is not found, an appropriate message should to be displayed. As a Python expert, help him to complete the following code (by completing statements 1, 2, 3, and 4) based on the requirement given above: (i) Complete Statement #1 to import the required module. (ii) Write the correct statement required to open a temporary file named temp.dat. (#Statement 2) (iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat (iv) What should be written in Statement4 to write there records in the file temp.dat? <pre> import_____ #Statement1 def update_data(): rec={} fin=open("record.dat","rb") fout=open("_____",") #Statement2 found=False eid=int(input("Enter employee id:")) while True: try: rec= _____ #Statement3 if rec["Employee id"]==eid: found=Tru e else: _____ #Statement 4 except: break if found==True: print("Recorddeleted.") else: print("Employee with such id is notfound") fin.close() fout.close() </pre>	4

32.	A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database Administrator, Abhay has decided that: Name of the database–mystore Name of the table –STORE The attributes of STORE are as follows ItemNo –numeric ItemName–character of size 20 Scode – numeric Quantity– numeric Table : STORE <table><tr><th>ItemNo</th><th>ItemName</th><th>Scode</th><th>Quantity</th></tr><tr><td>2005</td><td>SharpnerClassic</td><td>23</td><td>60</td></tr><tr><td>2003</td><td>BallPen0.25</td><td>22</td><td>50</td></tr><tr><td>2002</td><td>GelPenPremium</td><td>21`</td><td>150</td></tr><tr><td>2006</td><td>GelPenClassic</td><td>21</td><td>250</td></tr><tr><td>2001</td><td>EraserSmall</td><td>22</td><td>110</td></tr><tr><td>2004</td><td>EraserBig</td><td>22</td><td>220</td></tr><tr><td>2009</td><td>BallPen0.5</td><td>21</td><td>180</td></tr></table> (a) Identify the attributes suitable to be declared as primary key (b) Write the query to add the row with following details (2010,"Notebook",23,155) (c) i) Abhay wants to remove the table STORE from the database MyStore, Help Abhay in writing the command for removing the table STORE from the database MyStore. ii) Now Abhay wants to display the structure of the table STORE i.e. name of the attributes and their respective data types that he has used in the table. Write the query to display the same. OR (i) Abhay wants to ADD a new column price with data type as decimal. Write the query to add the column.. (ii) Now Abhay wants to remove a column price from the table STORE. Write the query.	ItemNo	ItemName	Scode	Quantity	2005	SharpnerClassic	23	60	2003	BallPen0.25	22	50	2002	GelPenPremium	21`	150	2006	GelPenClassic	21	250	2001	EraserSmall	22	110	2004	EraserBig	22	220	2009	BallPen0.5	21	180	4
ItemNo	ItemName	Scode	Quantity																															
2005	SharpnerClassic	23	60																															
2003	BallPen0.25	22	50																															
2002	GelPenPremium	21`	150																															
2006	GelPenClassic	21	250																															
2001	EraserSmall	22	110																															
2004	EraserBig	22	220																															
2009	BallPen0.5	21	180																															
SECTION E																																		
33.	A company ABC Enterprises has four blocks of buildings as shown:																																	

B1

B2

B3

B4.

Distance between various blocks/locations:

B3---- B1:- 50M

B1---- B2:- 60M

B2---- B4:- 25M

B4---- B3:- 170M

B3---- B2:- 125M

B3---- B4:- 90M

Number of computers:

BLOCK B1 --- 150

BLOCK B2 --- 15

BLOCK B3 --- 15

BLOCK B4 --- 25

(1)

(1)

- (i) Suggest the most appropriate topology for the connection between the blocks. (1)
- (ii) The company wants internet accessibility in all the blocks. The suitable and cost effective technology for that would be? (1)
- (iii) Which devices will you suggest for connecting all the computers with in each of the blocks. (1)
- (iv) The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically. (1)
- (v) Suggest the most appropriate location of the server, to get the best connectivity for maximum number of computers.



General Instructions :

- (i) This question paper is divided into 3 Sections – A, B and C.
- (ii) Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- (iii) Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- (iv) Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- (v) Internal choices have been given for question numbers – 7, 8 and 12.

SECTION – A

(Each question carries 2 marks)

1. “Stack is a linear data structure which follows a particular order in which the operations are performed.”

2

What is the order in which the operations are performed in a Stack ?

Name the List method/function available in Python which is used to remove the last element from a list implemented stack.

Also write an example using Python statements for removing the last element of the list.

2. (i) Expand the following :

1

VoIP, PPP

- (ii) Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth technology to connect two devices. Which type of network (PAN/LAN/MAN/WAN) will be formed in this case ?

1





3. Differentiate between the terms Attribute and Domain in the context of Relational Data Model. 2

4. Consider the following SQL table MEMBER in a SQL Database CLUB : 2

Table : **MEMBER**

M_ID	NAME	ACTIVITY
M1001	Amina	GYM
M1002	Pratik	GYM
M1003	Simon	SWIMMING
M1004	Rakesh	GYM
M1005	Avneet	SWIMMING

Assume that the required library for establishing the connection between Python and MYSQL is already imported in the given Python code. Also assume that DB is the name of the database connection for table MEMBER stored in the database CLUB.

Predict the output of the following code :

```
MYCUR = DB.cursor()
MYCUR.execute ("USE CLUB")
MYCUR.execute ("SELECT * FROM MEMBER WHERE ACTIVITY= 'GYM' ")
R=MYCUR.fetchone()
for i in range (2) :
    R=MYCUR.fetchone()
    print (R[0], R[1], sep = "#")
```





5. Write the output of SQL queries (a) to (d) based on the table VACCINATION_DATA given below :

2

TABLE : VACCINATION_DATA

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

- (a) SELECT Name, Age FROM VACCINATION_DATA
WHERE Dose2 IS NOT NULL AND Age > 40;
- (b) SELECT City, COUNT(*) FROM VACCINATION_DATA GROUP BY City;
- (c) SELECT DISTINCT City FROM VACCINATION_DATA;
- (d) SELECT MAX (Dose1), MIN (Dose2) FROM VACCINATION_DATA;

6. Write the output of SQL queries (a) and (b) based on the following two tables DOCTOR and PATIENT belonging to the same database :

2

Table : DOCTOR

DNO	DNAME	FEES
D1	AMITABH	1500
D2	ANIKET	1000
D3	NIKHIL	1500
D4	ANJANA	1500





Table : **PATIENT**

PNO	PNAME	ADMDATE	DNO
P1	NOOR	2021-12-25	D1
P2	ANNIE	2021-11-20	D2
P3	PRAKASH	2020-12-10	NULL
P4	HARMEET	2019-12-20	D1

(a) SELECT DNAME, PNAME FROM DOCTOR

NATURAL JOIN PATIENT ;

(b) SELECT PNAME, ADMDATE, FEES

FROM PATIENT P, DOCTOR D

WHERE D.DNO = P.DNO AND FEES > 1000;

7. Differentiate between Candidate Key and Primary Key in the context of Relational Database Model.

2

OR

Consider the following table **PLAYER** :

Table : **PLAYER**

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	42





- (a) Identify and write the name of the most appropriate column from the given table **PLAYER** that can be used as a Primary key.
- (b) Define the term Degree in relational data model. What is the Degree of the given table **PLAYER** ?

SECTION - B

(Each question carries 3 marks)

8. • Write the definition of a user defined function **PushNV(N)** which accepts a list of strings in the parameter **N** and **pushes** all strings which have no vowels present in it, into a list named **NoVowel**. 3
- Write a program in Python to input 5 words and **push** them one by one into a list named **All**.

The program should then use the function **PushNV()** to create a stack of words in the list **NoVowel** so that it stores only those words which do not have any vowel present in it, from the list **All**. Thereafter, **pop** each word from the list **NoVowel** and display the popped word. When the stack is empty display the message **"EmptyStack"**.

For example :

If the Words accepted and pushed into the list **All** are

['DRY', 'LIKE', 'RHYTHM', 'WORK', 'GYM']





Then the stack **NoVowel** should store

['DRY', 'RHYTHM', 'GYM']

And the output should be displayed as

GYM RHYTHM DRY EmptyStack

OR

- Write the definition of a user defined function **Push3_5(N)** which accepts a list of integers in a parameter **N** and **pushes** all those integers which are **divisible by 3 or divisible by 5** from the list **N** into a list named **Only3_5**.
- Write a program in Python to input 5 integers into a list named **NUM**.
The program should then use the function **Push 3_5()** to create the stack of the list **Only3_5**. Thereafter **pop** each integer from the list **Only3_5** and display the popped value. When the list is empty, display the message "**StackEmpty**".

For example :

If the integers input into the list **NUM** are :

[10, 6, 14, 18, 30]

Then the stack **Only3_5** should store

[10, 6, 18, 30]

And the output should be displayed as

30 18 6 10 StackEmpty





9. (i) A SQL table **ITEMS** contains the following columns :

INO, INAME, QUANTITY, PRICE, DISCOUNT

Write the SQL command to remove the column **DISCOUNT** from the table.

- (ii) Categorize the following SQL commands into **DDL** and **DML** :

CREATE, UPDATE, INSERT, DROP

10. Rohan is learning to work upon Relational Database Management System (RDBMS) application. Help him to perform following tasks :

- (a) To open the database named "**LIBRARY**".
(b) To display the names of all the tables stored in the opened database.
(c) To display the structure of the table "**BOOKS**" existing in the already opened database "**LIBRARY**".

SECTION - C

(Each question carries 4 marks)

11. Write SQL queries for (a) to (d) based on the tables **PASSENGER** and **FLIGHT** given below :

Table : **PASSENGER**

PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103





Table : **FLIGHT**

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

- (a) Write a query to change the fare to 6000 of the flight whose FNO is F104.
- (b) Write a query to display the total number of MALE and FEMALE PASSENGERS.
- (c) Write a query to display the **NAME**, corresponding **FARE** and **F_DATE** of all PASSENGERS who have a flight to **START** from DELHI.
- (d) Write a query to delete the records of flights which end at Mumbai.
12. (i) Differentiate between Bus Topology and Tree Topology. Also, write one advantage of each of them.

2

OR

Differentiate between HTML and XML.

- (ii) What is a web browser ? Write the names of any two commonly used web browsers.

2



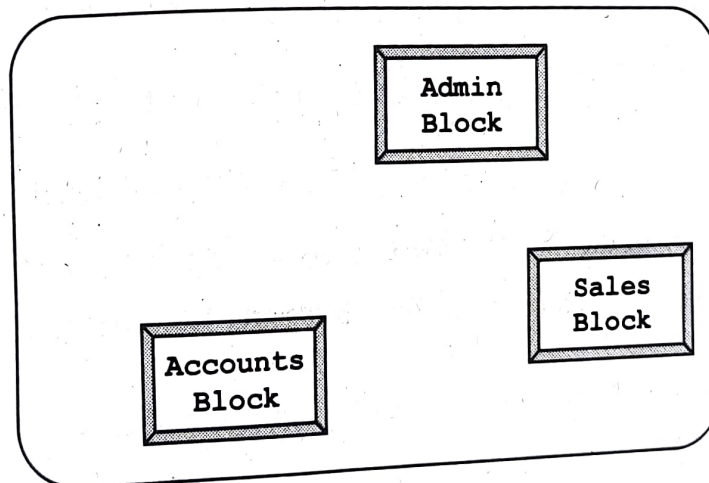


13. Galaxy Provider Ltd. is planning to connect its office in Texas, USA with its branch at Mumbai. The Mumbai branch has 3 Offices in three blocks located at some distance from each other for different operations – ADMIN, SALES and ACCOUNTS.

4

As a network consultant, you have to suggest the best network related solutions for the issues/problems raised in (a) to (d), keeping in mind the distances between various locations and other given parameters.

Layout of the Offices in the Mumbai branch :



Shortest distances between various locations :

ADMIN Block to SALES Block	300 m
SALES Block to ACCOUNTS Block	175 m
ADMIN Block to ACCOUNTS Block	350 m
MUMBAI Branch to TEXAS Head Office	14000 km





Number of Computers installed at various locations are as follows :

ADMIN Block	255
ACCOUNTS Block	75
SALES Block	30
TEXAS Head Office	90

- (a) It is observed that there is a huge data loss during the process of data transfer from one block to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one block office with another to refresh the signal and forward it ahead.
- (i) MODEM (ii) ETHERNET CARD
(iii) REPEATER (iv) HUB
- (b) Which hardware networking device out of the following, will you suggest to connect all the computers within each block ?
- (i) SWITCH (ii) MODEM
(iii) REPEATER (iv) ROUTER
- (c) Which service/protocol out of the following will be most helpful to conduct live interactions of employees from Mumbai Branch and their counterparts in Texas ?
- (i) FTP (ii) PPP
(iii) SMTP (iv) VoIP
- (d) Draw the cable layout (block to block) to efficiently connect the three offices of the Mumbai branch.



Series ΣHEFG



SET-4

रोल नं.

Roll No.

1 3 6 2 4 3 5 3

प्रश्न-पत्र कोड
Q.P. Code

91

Candidates must write the Q.P. Code
on the title page of the answer-book.

COMPUTER SCIENCE

Time allowed : 3 hours

Maximum Marks : 70

- Please check that this question paper contains 15 printed pages.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 35 questions.
- Please write down the serial number of the question in the answer-book before attempting it.
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period.

^



91

280

1



P.T.O.

General Instructions :

- (i) This question paper contains five sections, Section A to E.
- (ii) All questions are compulsory.
- (iii) Section A have 18 questions carrying 1 mark each.
- (iv) Section B has 7 Very Short Answer type questions carrying 2 marks each.
- (v) Section C has 5 Short Answer type questions carrying 3 marks each.
- (vi) Section D has 3 Long Answer type questions carrying 5 marks each.
- (vii) Section E has 2 questions carrying 4 marks each. One internal choice is given in Q. 34 and 35, against Part (iii) only.
- (viii) All programming questions are to be answered using Python Language only.

SECTION - A

1. State True or False.
"Identifiers are names used to identify a variable, function in a program". 1
2. Which of the following is a valid keyword in Python ? 1
(a) false (b) return
(c) non_local (d) none
3. Given the following Tuple 1
Tup= (10, 20, 30, 50)
Which of the following statements will result in an error ?
(a) print(Tup[0]) (b) Tup.insert (2, 3)
(c) print(Tup[1:2]) (d) print(len(Tup))
4. Consider the given expression :
5<10 and 12>7 or not 7>4
Which of the following will be the correct output, if the given expression is evaluated ? 1
(a) True (b) False
(c) NONE (d) NULL
5. Select the correct output of the code : 1
S= "Amrit Mahotsav @ 75"
A=S.partition (" ")
print (a)
(a) ('Amrit Mahotsav', '@', '75')
(b) ['Amrit', 'Mahotsav', '@', '75']
(c) ('Amrit', 'Mahotsav @ 75')
(d) ('Amrit', '', 'Mahotsav @ 75')



6. Which of the following mode keeps the file offset position at the end of the file? 1

- (a) r+ (b) r
(c) w (d) a

7. Fill in the blank. 1

_____ function is used to arrange the elements of a list in ascending order.

- (a) sort() (b) arrange()
(c) ascending() (d) asort()

8. Which of the following operators will return either True or False? 1

- (a) += (b) !=
(c) = (d) *=

9. Which of the following statement(s) would give an error after executing the following code? 1

```
Stud={"Murugan":100, "Mithu":95} # Statement 1
print (Stud[95]) # Statement 2
Stud ["Murugan"]=99 # Statement 3
print (Stud.pop()) # Statement 4
print (Stud) # Statement 5
```

- (a) Statement 2 (b) Statement 3
(c) Statement 4 (d) Statements 2 and 4

10. Fill in the blank. 1

_____ is a number of tuples in a relation.

- (a) Attribute (b) Degree
(c) Domain (d) Cardinality

11. The syntax of seek() is : 1

file_object.seek(offset[,reference_point])

What is the default value of reference_point?

- (a) 0 (b) 1
(c) 2 (d) 3

12. Fill in the blank : 1

_____ clause is used with SELECT statement to display data in a sorted form with respect to a specified column.

- (a) WHERE (b) ORDER BY
(c) HAVING (d) DISTINCT



13. Fill in the blank :

_____ is used for point-to-point communication or unicast communication such as radar and satellite.

- (a) INFRARED WAVES (b) BLUETOOTH
(c) MICROWAVES (d) RADIOWAVES

14. What will the following expression be evaluated to in Python ?

```
print(4+3*5/3-5%2)
```

- (a) 8.5 (b) 8.0
(c) 10.2 (d) 10.0

15. Which function returns the sum of all elements of a list ?

- (a) count() (b) sum()
(c) total() (d) add()

16. fetchall() method fetches all rows in a result set and returns a :

- (a) Tuple of lists (b) List of tuples
(c) List of strings (d) Tuple of strings

Q. 17 and 18 are ASSERTION (A) and REASONING (R) based questions. Mark the correct choice as

- (a) Both (A) and (R) are true and (R) is the correct explanation for (A).
(b) Both (A) and (R) are true and (R) is not the correct explanation for (A).
(c) (A) is true but (R) is false.
(d) (A) is false but (R) is true.

17. **Assertion (A) :** To use a function from a particular module, we need to import the module.

Reason (R) : import statement can be written anywhere in the program, before using a function from that module.

18. **Assertion (A) :** A stack is a LIFO structure.

Reason (R) : Any new element pushed into the stack always gets positioned at the index after the last existing element in the stack.



SECTION - B

19. Atharva is a Python programmer working on a program to find and return the maximum value from the list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made. 2

```
def max_num (L) :  
    max=L(0)  
    for a in L :  
        if a > max  
            max=a  
    return max
```

20. (a) Differentiate between wired and wireless transmission. 2

OR

- (b) Differentiate between URL and domain name with the help of an appropriate example. 2

21. (a) Given is a Python list declaration : 1

Listofnames=["Aman", "Ankit", "Ashish", "Rajan", "Rajat"]

Write the output of :

print (Listofnames [^{Start}-1:^{Stop}-4:^{Stop}-1])

- (b) Consider the following tuple declaration : 1

tup1=(10,20,30,(10,20,30),40)

Write the output of :

print(tup1,index(20))

22. Explain the concept of "Alternate Key" in a Relational Database Management System with an appropriate example. 2

23. (a) Write the full forms of the following : 2

(i) HTML

(ii) TCP

- (b) What is the need of Protocols ?

24. (a) Write the output of the code given below : 2

```
def short_sub (lst,n) :  
    for i in range (0,n) :  
        if len (lst)>4:  
            lst [i]=lst [i]+lst[i]  
        else:  
            lst[i]=lst[i]  
subject=['CS','HINDI','PHYSICS','CHEMISTRY','MATHS']  
short_sub(subject,5)  
print(subject)
```

OR



(b) Write the output of the code given below :

```
a = 30
def call (x) :
    global a
    if a%2==0:
        x+=a
    else:
        x-=a
    return x
x=20
print(call(35),end="#")
print(call(40),end= "@")
```

25. (a) Differentiate between CHAR and VARCHAR data types in SQL with appropriate example. 2

OR

(b) Name any two DDL and any two DML commands. 2

SECTION - C

26. (a) Consider the following tables – LOAN and BORROWER : 1 + 2

Table : LOAN

LOAN_NO	B_NAME	AMOUNT
L-170	DELHI	3000
L-230	KANPUR	4000

Table : BORROWER

CUST_NAME	LOAN_NO
JOHN	L-171
KRISH	L-230
RAVYA	L-170

How many rows and columns will be there in the natural join of these two tables ?



- (b) Write the output of the queries (i) to (iv) based on the table, WORKER given below :

TABLE: WORKER

W_ID	F_NAME	L_NAME	CITY	STATE
102	SAHIL	KHAN	KANPUR	UTTAR PRADESH
104	SAMEER	PARIKH	ROOP NAGAR	PUNJAB
105	MARY	JONES	DELHI	DELHI
106	MAHIR	SHARMA	SONIPAT	HARYANA
107	ATHARVA	BHARDWAJ	DELHI	DELHI
108	VEDA	SHARMA	KANPUR	UTTAR PRADESH

- (i) SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;
- (ii) SELECT DISTINCT (CITY) FROM WORKER;
- (iii) SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';
- (iv) SELECT CITY, COUNT(*) FROM WORKER GROUP BY CITY;

27. (a) Write the definition of a Python function named LongLines() which reads the contents of a text file named 'LINES.TXT' and displays those lines from the file which have at least 10 words in it. For example, if the content of 'LINES.TXT' is as follows :

3

Once upon a time, there was a woodcutter

He lived in a little house in a beautiful, green wood.

One day, he was merrily chopping some wood.

He saw a little girl skipping through the woods, whistling happily.

The girl was followed by a big gray wolf.

Then the function should display output as :

He lived in a little house in a beautiful, green wood.

He saw a little girl skipping through the woods, whistling happily.

OR



- (b) Write a function `count_Dwords()` in Python to count the words ending with a digit in a text file "Details.txt".

Example:

If the file content is as follows :

On seat2 VIP1 will sit and

On seat1 VVIP2 will be sitting

Output will be:

Number of words ending with a digit are 4

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations COMPUTER and SALES given below :

Table : COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

Table : SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

- (i) `SELECT MIN(PRICE), MAX(PRICE) FROM COMPUTER;`
(ii) `SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT(COMPANY) > 1;`
(iii) `SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID AND TYPE = 'INPUT';`
(iv) `SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID;`
(b) Write the command to view all databases.



29. Write a function `EORepace()` in Python, which accepts a list `L` of numbers. Thereafter, it increments all even numbers by 1 and decrements all odd numbers by 1.

3

Example :

If Sample Input data of the list is :

`L=[10, 20, 30, 40, 35, 55]`

Output will be :

`L=[11, 21, 31, 41, 34, 54]`

30. (a) A list contains following record of customer:

`[Customer_name, Room Type]`

Write the following user defined functions to perform given operations on the stack named 'Hotel' :

- (i) `Push_Cust()` – To Push customers' names of those customers who are staying in 'Delux' Room Type.
- (ii) `Pop_Cust()` – To Pop the names of customers from the stack and display them. Also, display "Underflow" when there are no customers in the stack.

For example :

If the lists with customer details are as follows :

`["Siddharth", "Delux"]`

`["Rahul", "Standard"]`

`["Jerry", "Delux"]`

The stack should contain

Jerry

Siddharth

The output should be:

Jerry

Siddharth

Underflow

OR

- (b) Write a function in Python, `Push (Vehicle)` where, `Vehicle` is a dictionary containing details of vehicles – `{Car_Name: Maker}`.

The function should push the name of car manufactured by 'TATA' (including all the possible cases like Tata, TaTa, etc.) to the stack.

3

For example:

If the dictionary contains the following data:

`Vehicle={"Santro":"Hyundai", "Nexon":"TATA", "Safari":"Tata"}`

The stack should contain

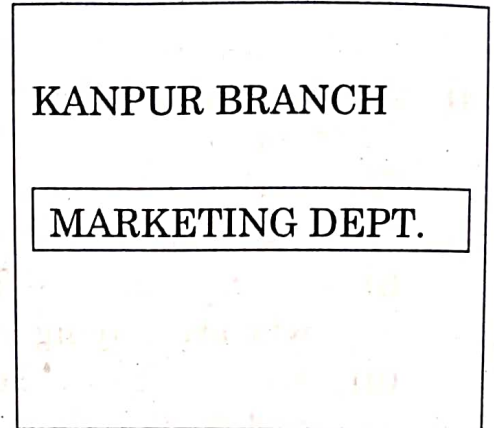
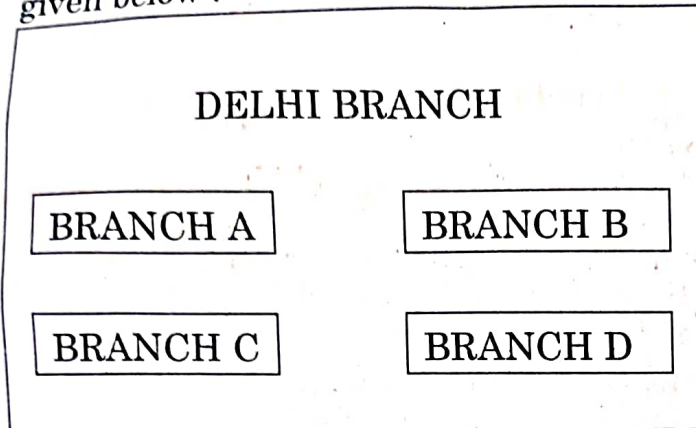
Safari

Nexon



SECTION - D

31. Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below :



Distance between various branches is as follows :

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches :

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

- (i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.



- (ii) Suggest an ideal layout for connecting all these branches within Delhi. 1
- (iii) Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches? 1
- (iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed? Justify your answer. 1
- (v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch. 1

82. (a) What possible output(s) are expected to be displayed on screen at the time of execution of the following program :

```
import random
M=[5,10,15,20,25,30]
for i in range(1,3):
    first=random.randint(2,5)- 1
    sec=random.randint(3,6)- 2
    third=random.randint(1,4)
    print(M[first],M[sec],M[third],sep="#")
```

- | | |
|----------------|----------------|
| (i) 10#25#15 | (ii) 5#25#20 |
| 20#25#25 | 25#20#15 |
| (iii) 30#20#20 | (iv) 10#15#25# |
| 20#25#25 | 15#20#10# |

2

- (b) The code given below deletes the record from the table employee which contains the following record structure :

E_code - String
E_name - String
Sal - Integer
City - String

Note the following to establish connectivity between Python and MySQL :

- Username is root
- Password is root
- The table exists in a MySQL database named emp.
- The details (E_code, E_name, Sal, City) are the attributes of the table.



Write the following statements to complete the code :

Statement 1 – to import the desired library.

Statement 2 – to execute the command that deletes the record with
E_code as 'E101'.

Statement 3 – to delete the record permanently from the database.

```
import _____ as mysql # Statement 1
def delete( ) :
    mydb=mysql.connect(host="localhost",user="root",
    passwd="root",database="emp")
    mycursor=mydb.cursor( )
    _____ # Statement 2
    _____ # Statement 3
    print ("Record deleted")
```

3

OR

(a) Predict the output of the code given below :

```
def makenew(mystr):
    newstr=""
    count=0
    for i in mystr:
        if count%2!=0:
            newstr=newstr+str(count)
        else :
            if i.lower():
                newstr=newstr+i.upper()
            else:
                newstr=newstr+i
        count+=1
    print(newstr)
makenew("No@1")
```

2



- (b) The code given below reads the following records from the table employee and displays only those records who have employees coming from city 'Delhi':

E_code - String

E_name - String

Sal - Integer

City - String

Note the following to establish connectivity between Python and MySQL:

- Username is root
- Password is root
- The table exists in a MySQL database named emp.
- The details (E_code, E_name, Sal, City) are the attributes of the table.

Write the following statements to complete the code :

Statement 1 – to import the desired library.

Statement 2 – to execute the query that fetches records of the employees coming from city 'Delhi'.

Statement 3 – to read the complete data of the query (rows whose city is Delhi) into the object named details, from the table employee in the database.

3

```
import _____ as mysql # Statement 1
```

```
def display():
```

```
    mydb=mysql.connect(host="localhost",user="root",  
    passwd="root",database="emp")
```

```
    mycursor=mydb.cursor()
```

```
    _____ # Statement 2
```

```
    details = _____ # Statement 3
```

```
    for i in details:
```

```
        print (i)
```



33. (a) Write one difference between CSV and text files.
Write a program in Python that defines and calls the following user defined functions :

- (i) COURIER_ADD() : It takes the values from the user and adds the details to a csv file 'courier.csv'. Each record consists of a list with field elements as cid, s_name, Source, destination to store Courier ID, Sender name, Source and destination address respectively.
- (ii) COURIER_SEARCH() : Takes the destination as the input and displays all the courier records going to that destination.

OR

- (b) Why it is important to close a file before exiting ?
Write a program in Python that defines and calls the following user defined functions :

- (i) Add_Book() : Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as book_ID, B_name and pub to store book ID, book name and publisher respectively.
- (ii) Search_Book() : Takes publisher name as input and counts and displays number of books published by them.

SECTION - E

34. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created a table and entered data of 5-labs.

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary Kom	37	II

- Based on the data given above answer the following questions :
- (i) Identify the columns which can be considered as Candidate keys.
- (ii) Write the degree and cardinality of the table.
- (iii) Write the statements to :

- (a) Insert a new row with appropriate data.
- (b) Increase the capacity of all the labs by 10 students which are on 'I' Floor.

OR

- (Option for part (iii) only)
- (iii) Write the statements to :

- (a) Add a constraint PRIMARY KEY to the column LABNO in the table.
- (b) Delete the table LAB.



35. Shreyas is a programmer, who has recently been given a task to write a user defined function named `write_bin( )` to create a binary file called `Cust_file.dat` containing customer information – customer number (`c_no`), name (`c_name`), quantity (`qty`), price (`price`) and amount (`amt`) of each customer.

The function accepts customer number, name, quantity and price. Thereafter, it displays the message 'Quantity less than 10..... Cannot SAVE', if quantity entered is less than 10. Otherwise the function calculates amount as `price * quantity` and then writes the record in the form of a list into the binary file.

```
import pickle
def write_bin():
    bin_file=_____ #Statement 1
    while True:
        c_no=int(input("enter customer number"))
        c_name=input("enter customer name")
        qty=int(input("enter qty"))
        price=int(input("enter price"))
        if _____ #Statement 2
            print("Quantity less than 10..Cannot SAVE")
        else:
            amt=price * qty
            c_detail=[c_no,c_name,qty,price,amt]
            _____ #Statement 3
            ans=input("Do you wish to enter more records y/n")
            if ans.lower()=='n':
                _____ #Statement 4
                _____ #Statement 5
                _____ #Statement 6
```

- (i) Write the correct statement to open a file '`Cust_file.dat`' for writing the data of the customer. 1
- (ii) Which statement should Shreyas fill in Statement 2 to check whether quantity is less than 10. 1
- (iii) Which statement should Shreyas fill in Statement 3 to write data to the binary file and in Statement 4 to stop further processing if the user does not wish to enter more records. 2

OR

(Option for part (iii) only)

- (iii) What should Shreyas fill in Statement 5 to close the binary file named `Cust_file.dat` and in Statement 6 to call a function to write data in binary file? 2



Rankey Singh

PCT (CS), KVIAglo

SECTION-A

1 M x 18 Qs = 18 M

- | | | |
|---------|-------|-------|
| 1. True | 7. A | 13. C |
| 2. B | 8. B | 14. B |
| 3. B | 9. D | 15. B |
| 4. A | 10. D | 16. B |
| 5. D | 11. A | 17. A |
| 6. D | 12. B | 18. A |

SECTION-B

2 M x 7 Qs = 14 M

```

A19) def max-num(L):
    max = L[0]
    for a in L:
        if a > max:
            max = a
    return max

```

Error 1
Error 2
Error 3

A20) (a) Difference wired & wireless transmission 1 M
 Example: LAN → wifi 1 M

OR
 (b) http://www.cbse.nic.in/welcome.htm 1 M

Example URL (Uniform Resource Locator)
 cbse.nic.in → Domain Name
 Difference in words 1 M

A21) ⁰Aman, ¹Ankit, ²Ashish, ³Rajen, ⁴Rajat

print (distances [-1: -4: -1])

o/p Rajat
Rajen
Ashish

1M

A22) ~~(a)~~ (b) tupl = (10, 20, 30, (10, 20, 30), 40)

0 1 2 3 4

print (tupl.index(20))

o/p : 1

1M

A23) (a) (i) HTML: Hypertext Markup Language $\frac{1}{2}M$
(ii) TCP: Transmission Control Protocol $\frac{1}{2}M$

(b) Protocol: Rules & regulation of transferring data over internet. 1M

A24) o/p (a)

2M

CSCS HINDI HINDI PHYSICS PHYSICS CHEMISTRY CHEMISTRY MARK MARKS

~~(a)~~ (b) o/p 65# 70@

2M

A25) CHAR: Fixed length of data, like gender
char(1) 1M

VARCHAR: Variable length of data
like name varchar(20) 1M

OR

DDL : Create, Alter, Drop 1M

DML : Select, Insert, Update, Delete 1M

SECTION - C

5Q/s x 3M = 15M

A 26) (a) Rows : 2 Columns: 4 1M

(b) i) F-NAME	CITY	ii) DISTINCT (CITY)
SAHIL	KANPUR	KANPUR
VEDA	KANPUR	ROOP NAGAR
SAMEER	ROOPNAGAR	DELHI
MAHIR	SONIPAT	SONIPAT
MARY	DELHI	
ATHARVA	DELHI	

iii) F-NAME	STATE	iv) CITY	COUNT(*)
SAHIL	UTTAR PRADESH	KANPUR	2
MAHIR	HARYANA	ROOPNAGAR	1
ATHARVA	DELHI	DELHI	2
VEDA	UTTAR PRADESH	SONIPAT	1

 $\frac{1}{2}M \times 4$

A27) (a) def longlines():

3M

```
f = open('LINES.TXT')
```

```
data = f.readline()
```

```
while data:
```

```
    w = data.split()
```

```
    if len(w) > 10:
```

```
        print(data)
```

```
    data = f.readline()
```

```
f.close()
```

OR

(b) def count_words():

3M

```
f = open('Details.txt')
```

```
data = f.read()
```

```
data = data.split()
```

```
ctr = 0
```

```
for w in data:
```

```
    if w[-1].isdigit():
```

```
        ctr = ctr + 1
```

```
f.close()
```

```
print('Number of words ending  
with a digit are', ctr)
```

A28) Q/P

1/2 M x 4

i)

<u>MIN (PRICE)</u>	<u>MAX (PRICE)</u>
200	4300

ii)

<u>COMPANY</u>	<u>COUNT(*)</u>
LOGITECH	2
CANON	2

iii)

<u>PROD-NAME</u>	<u>QTY-SOLD</u>
MOUSE	3
KEYBOARD	2
JOYSTICK	2

iv)

<u>PROD-NAME</u>	<u>COMPANY</u>	<u>QUARTER</u>
MOUSE	LOGITECH	2
LASER PRINTER	CANON	1
KEYBOARD	LOGITECH	2
JOYSTICK	IBALL	1

⑥ SHOW DATABASES;

1 M

A29)

3M

```
def EOReplace (L):  
    for i in range(len(L)):  
        N = L[i]  
        if N % 2 == 0:  
            L[i] += 1  
        else:  
            L[i] -= 1
```

main-code

Lst = [10, 20, 30, 40, 35, 55]

print ('Output')

EOReplace (Lst)

print (Lst)

A30)

3M

```
def Push-Cust (L):  
    for date in L:  
        if date[1] == 'Delux':  
            Hotel.append(date[0])
```

```
def Pop-Cust():  
    if len(Hotel) == 0:  
        print ('Underflow')  
    else:  
        print (Hotel.pop())
```

main-code

L = [['Siddharth', 'Delux'], ['Rahul', 'Standard'], ['Jany', 'Delux']]

Hotel = []

Push-Cust (L)

Pop-Cust (Hotel)

OR Part (b)

def Push(vehicle):

for k,v in vehicle.items():

if v.upper() == 'TATA':

stk.append(k)

main-code

vehicle = {'Santro': 'Hyundai', 'Nexon': 'TATA', 'Safari': 'Tata'}

stk = []

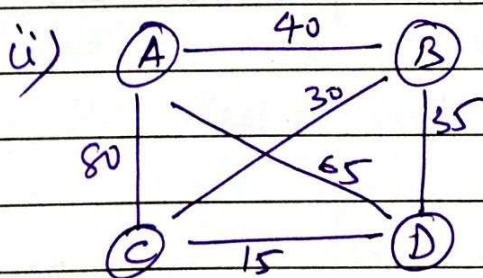
Push(vehicle)

print(stk)

SECTION-D

5M x 3Qs = 15M

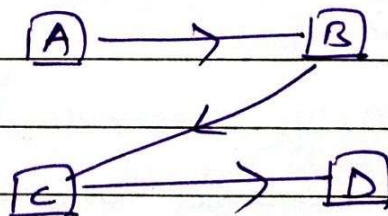
A31) i) Place - Branch D, as it has max no of outputs



$$A-B-D-C = 40+35+15 = 90$$

$$A-C-D-B = 80+15+35 = 130$$

$$A-B-C-D = 40+30+15 = 85$$

So shortest distance 85

iii) Switch/Hub must be placed in each Branch

iv) WAN with justification

v) FTP : File Transfer Protocol

$M = [5, 10, 15, 20, 25, 30]$
 0 1 2 3 4 5

A32) (a) $i \rightarrow 1, 2$ means 2 times.

2M

<u>first</u>	<u>Sec</u>	<u>third</u>
$(2, 3, 4, 5) - 1$	$(3, 4, 5, 6) - 2$	$1, 2, 3, 4$
Value $\Rightarrow$ <u>1, 2, 3, 4</u>	<u>1, 2, 3, 4</u>	
i) $10 \# 25 \# 15$ $20 \# 25 \# 25$	✓	ii) $5 \# 25 \# 20$ $25 \# 20 \# 15$
iii) $30 \# 20 \# 20$ $20 \# 25 \# 25$	Index Can't print	iv) $10 \# 15 \# 25 \#$ $15 \# 20 \# 10 \#$

print (M[first], M[Sec], M[third], Sep='#')

So the correct Answer (i)

3M

(b) S1: mysql.connector

S2: mysql.execute("delete from emp where E_code='E01'")

S3: mydb.commit()

OR part

(a) N1@3

2M

(b) S1: mysql.connector

3M

S2: mysql.execute("Select * from emp where City='Delhi'")

S3 = mycursor.fetchall()

A33) (a) CSV : Comma Separated Value, only data 1M

Text file: Contains all readable characters.

Used to store all kind of valid text.

import csv as c

1/2 M

def COURIER-ADD():

filename = 'courier.csv'

1 1/2 M

cid = input('Enter Courier ID')

s-name = input('Enter Sender Name')

Source = input('Enter Source')

destination = input('Enter Destination')

L = [cid, s-name, Source, destination]

with open(filename, 'w') as csvfile:

csvwrite = c.writer(csvfile)

csvwrite.writerow(L)

def COURIER-SEARCH():

1 1/2 M

dest = input('Enter destination to Search')

with open('Courier.csv') as csvfile:

csv-read = c.reader(csvfile, delimiter=',')

for data in csv-read:

if data[3] == dest:

print(data)

main - code

COURIER-ADD()

COURIER-SEARCH()

} 1/2 M

OR Part

- (b) It is important to close a file before exiting so that data may be preserved & other application can use that file. Otherwise that file will not be accessible to other appl.

Add_Book() & search_Book() as previous function

SECTION - E

2 Qs * 4M = 8M

A34)

- i) CK : LABNO, LAB-NAME 1M
ii) D = 5 C = 5 $\frac{1}{2}M \times 2$
iii) a) insert into LAB 1M
values('L006', 'CS LAB', 'Kishanhu', 50, 'I')
b) update LAB 1M
set capacity = capacity + 10 where floor = 'I';

OR

- a) Alter table LAB 1M
add primary key (LABNO)
b) delete from LAB; 1M

A35)i) `bin-file = open('custfile.dat', 'wb')`S₁

1M

ii) `qty < 10 :`S₂

1M

iii) ~~`bin-file`~~ `pickle.dump(c-detail, bin-file)`
`break`S₃

1M

S₄

1M

OR PaskS₅ → `bin-file.close()`

1M

S₆ → `write-bin()`

1M



CBSE Additional Practice Question Paper
Class: XII Session: 2023-24
Computer Science (083)

Time allowed: 3 Hours

Maximum Marks: 70

General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

Q No.	Questions Section-A (18 Marks)	Marks
1	Which of the following is an invalid identifier to be used in Python? a. per%marks b. _for c. While d. true	1
2	What is the correct way to add an element to the end of a list in Python? a. list.add(element) b. list.append(element) c. list.insert(element) d. list.extend(element)	1
3	What will be the output of print("Welcome To My Blog"[2:6] + "Welcome To My Blog"[5:9]) a. Lcomme b. lcomme T c. lcomme To d. lcomme	1
4	Which of the following statements is false? a. A try-except block can have more than one except statement b. One block of except statement cannot handle multiple exceptions c. The finally block is always executed d. When 1 == "1" is executed, no exception is raised	1
5	Which of the following statement(s) would give an error during the execution of the following code? R = {'pno':52,'pname':'Virat', 'expert':['Badminton','Tennis'],'score':(77,44)} print(R) #Statement 1	1

	R['expert'][0]='Cricket' #Statement 2 R['score'][0]=50 #Statement 3 R['pno']=50 #Statement 4 a. Statement 1 b. Statement 2 c. Statement 3 d. Statement 4	
6	Which pickle module method is used to write a Python object to a binary file? a. save() b. serialize() c. store() d. dump()	1
7	Given the following dictionaries dict_student = {"rno" : "53", "name" : 'Rajveer Singh'} dict_marks = {"Accts" : 87, "English" : 65} Which statement will append the contents of dict_marks in dict_student? a. dict_student + dict_marks b. dict_student.add(dict_marks) c. dict_student.merge(dict_marks) d. dict_student.update(dict_marks)	1
8	Which of the following is not a component of the math module in Python? a. ceil() b. mean() c. fabs() d. pi	1
9	What will be the output of the following code? L=["One", "Two", "Three", "Four"] print(len(L)/2*len(L[0])) a. 6.5 b. 13 c. 13.5 d. 6.0	1
10	Expand the following terms: (i) PPP (ii) VoIP	1
11	Which SQL operator performs pattern matching? a. BETWEEN operator b. LIKE operator c. EXISTS operator d. =	1

12	Which Python function is used for displaying only one result set from SQL table in a database? a. fetch1() b. fetchno() c. fetchall() d. fetchone()	1
13	Which of the following file opening mode in Python, generates an error if the file does not exist? a. a b. r c. w d. w+	1
14	The correct syntax of seek() is: a. file_object.seek(offset [, reference_point]) b. seek(offset [, reference_point]) c. seek(offset, file_object) d. seek.file_object(offset)	1
15	Which of the following statements is false? a. SMTP and POP protocols are used in email communication. b. URL of a page is not always the same as its domain name. c. HTTPS is safer than HTTP. d. Interlinking of collection of webpages is called Internet.	1
16	Fill in the blank: _____ protocol provides access to services hosted on a remote computer. a. FTP b. PPP c. Telnet d. SMTP	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	
17	Assertion (A): For changes made to a variable defined within a function to be visible outside the function, it should be declared as global. Reasoning (R): Variables defined within a function are local to that function by default, unless explicitly specified with the global keyword.	1
18	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module.	1

	Reasoning (A): Binary files are just like normal text files and can be read using a text editor like Notepad.	
Q No.	Questions Section-B (14 Marks)	Marks
19	Write two advantages and two disadvantages of circuit switching. OR Differentiate between Web server and web browser. Write the names of any two web browsers.	2
20	Rewrite the following code in Python after removing all the syntax errors. Underline each correction done in the code. <pre> num1, num2 = 10, 45 While num1 % num2 == 0 num1+= 20 num2+= 30 Else: print('hello') </pre>	2
21	Write a function dispBook(BOOKS) in Python, that takes a dictionary BOOKS as an argument and displays the names in uppercase of those books whose name starts with a consonant. For example, Consider the following dictionary <pre> BOOKS = {1:"Python", 2:"Internet Fundamentals ", 3:"Networking ", 4:"Oracle sets", 5:"Understanding HTML"} </pre> The output should be: PYTHON NETWORKING OR Write a Python Program containing a function FindWord(String, SEARCH), that accepts two arguments : String and SEARCH, and prints the count of occurrence of SEARCH in String. Write appropriate statements to call the function. For example, if String = "Learning history helps to know about history with interest in history" and SEARCH = 'history', the function should display The word history occurs 3 times.	2
22	What will be the output of the following code? <pre> L = [5,10,15,1] G = 4 def Change(X): global G N=len(X) for i in range(N): X[i] += G </pre> Change(L) <pre> for i in L: print(i,end='\$') </pre>	2

23	Write a suitable Python statement for each of the following tasks using built-in functions/methods only: i To delete an element Mumbai:50 from Dictionary D. ii To display words in a string S in the form of a list OR Write a Python Program to display alternate characters of a string my_str. For example, if my_str = "Computer Science" The output should be Cmue cec	2																																																																						
24	Differentiate between % (percentage) and _(underscore) characters used with the LIKE operator in SQL with appropriate examples. OR Differentiate between DROP and DELETE commands in SQL with appropriate examples.	2																																																																						
25	Consider the following two commands with reference to a table, named Employee having a column named <i>Department</i>: (a) Select count(Department) from Employee; (b) Select count(*) from Employee; If these two commands are producing different results, (i) What may be the possible reason? (ii) Which command (a) or (b) might be giving a higher value?	2																																																																						
Q No	Questions Section-C (15 Marks)	Marks																																																																						
26	(a) Consider the table, BOOK and MEMBER given below: TABLE : BOOK <table><tr><td>CODE</td><td>BNAME</td><td>TYPE</td></tr><tr><td>F101</td><td>The priest</td><td>Fiction</td></tr><tr><td>L102</td><td>Easy Python</td><td>Programming</td></tr><tr><td>C101</td><td>Juman Ji</td><td>Thriller</td></tr><tr><td>F102</td><td>Untold Story</td><td>Fiction</td></tr><tr><td>C102</td><td>War Stories</td><td>Comic</td></tr></table> Table: MEMBER <table><tr><td>MNO</td><td>MNAME</td><td>CODE</td><td>ISSUEDATE</td></tr><tr><td>M101</td><td>SNEH SINHA</td><td>L102</td><td>2022-10-13</td></tr><tr><td>M103</td><td>SARTHAK</td><td>F102</td><td>2021-02-23</td></tr><tr><td>M102</td><td>SARA KHAN</td><td>C101</td><td>2022-06-12</td></tr></table> What will be the output of the following statement? SELECT * FROM BOOK NATURAL JOIN MEMBER; (b) Write the output of the queries (i) to (iv) based on the table Table: Employee <table><tr><td>EID</td><td>Name</td><td>DOB</td><td>DOJ</td><td>Salary</td><td>Project</td></tr><tr><td>E01</td><td>Ranjan</td><td>1990-07-12</td><td>2015-01-21</td><td>150000</td><td>P01</td></tr><tr><td>E02</td><td>Akhtar</td><td>1992-06-21</td><td>2015-02-01</td><td>125000</td><td>P04</td></tr><tr><td>E03</td><td>Muneera</td><td>1996-11-15</td><td>2018-08-19</td><td>135000</td><td>P01</td></tr><tr><td>E04</td><td>Alex</td><td>1991-10-25</td><td>2018-10-19</td><td>75000</td><td>P02</td></tr><tr><td>E05</td><td>Satyansh</td><td>1993-12-16</td><td>2018-10-19</td><td>85000</td><td>P04</td></tr></table>	CODE	BNAME	TYPE	F101	The priest	Fiction	L102	Easy Python	Programming	C101	Juman Ji	Thriller	F102	Untold Story	Fiction	C102	War Stories	Comic	MNO	MNAME	CODE	ISSUEDATE	M101	SNEH SINHA	L102	2022-10-13	M103	SARTHAK	F102	2021-02-23	M102	SARA KHAN	C101	2022-06-12	EID	Name	DOB	DOJ	Salary	Project	E01	Ranjan	1990-07-12	2015-01-21	150000	P01	E02	Akhtar	1992-06-21	2015-02-01	125000	P04	E03	Muneera	1996-11-15	2018-08-19	135000	P01	E04	Alex	1991-10-25	2018-10-19	75000	P02	E05	Satyansh	1993-12-16	2018-10-19	85000	P04	3
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E05	Satyansh	1993-12-16	2018-10-19	85000	P04																																																																			

	i SELECT NAME, PROJECT FROM EMPLOYEE ORDER BY NAME DESC; ii SELECT NAME, SALARY FROM EMPLOYEE WHERE NAME LIKE 'A%'; iii SELECT NAME, DOJ FROM EMPLOYEE WHERE SALARY BETWEEN 100000 AND 200000; iv SELECT * FROM EMPLOYEE WHERE PROJECT = 'P01';																																																						
27	(a) Consider the following tables – FACULTY and COURSES : Table: FACULTY <table><tr><th>FID</th><th>FNAME</th><th>LNAME</th><th>JOINDATE</th><th>SALARY</th></tr><tr><td>F01</td><td>Anishma</td><td>Garg</td><td>2000-12-14</td><td>32000</td></tr><tr><td>F03</td><td>Bhumi</td><td>Goel</td><td>2001-08-10</td><td>15000</td></tr><tr><td>F04</td><td>Neha</td><td>Verma</td><td>2000-05-17</td><td>27000</td></tr><tr><td>F05</td><td>Meenu</td><td>Sharma</td><td>2006-07-11</td><td>30000</td></tr></table> Table: COURSES <table><tr><th>C_ID</th><th>FID</th><th>CNAME</th><th>FEES</th></tr><tr><td>C11</td><td>F01</td><td>Grid Computing</td><td>40000</td></tr><tr><td>C12</td><td>F04</td><td>Python</td><td>17000</td></tr><tr><td>C13</td><td>F03</td><td>C++</td><td>8000</td></tr><tr><td>C14</td><td>F04</td><td>Computer Network</td><td>15000</td></tr><tr><td>C15</td><td>F01</td><td>HTML</td><td>12000</td></tr><tr><td>C16</td><td>F05</td><td>Data Science</td><td>NULL</td></tr></table> What will be the output of the following statement? i SELECT FID, MIN(FEES), MAX(FEES) FROM COURSES GROUP BY FID; ii SELECT AVG(SALARY) FROM FACULTY WHERE FNAME LIKE '%a'; iii SELECT FNAME, CNAME FROM FACULTY F, COURSES C WHERE F.FID=C.FID AND COURSES.FID='F04'; iv SELECT FNAME, CNAME , FEES FROM FACULTY F , COURSES C WHERE F.FID = C.FID AND FEE>15000; (b) Write the name of the command to display the structure of a table in a database.	FID	FNAME	LNAME	JOINDATE	SALARY	F01	Anishma	Garg	2000-12-14	32000	F03	Bhumi	Goel	2001-08-10	15000	F04	Neha	Verma	2000-05-17	27000	F05	Meenu	Sharma	2006-07-11	30000	C_ID	FID	CNAME	FEES	C11	F01	Grid Computing	40000	C12	F04	Python	17000	C13	F03	C++	8000	C14	F04	Computer Network	15000	C15	F01	HTML	12000	C16	F05	Data Science	NULL	3
FID	FNAME	LNAME	JOINDATE	SALARY																																																			
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C13	F03	C++	8000																																																				
C14	F04	Computer Network	15000																																																				
C15	F01	HTML	12000																																																				
C16	F05	Data Science	NULL																																																				
28	Write a function COUNT() in Python to read from a text file 'Gratitude.txt' and display the count of the letter 'e' in each line Example: If the file content is as follows: Gratitude is a humble heart's radiant glow, A timeless gift that nurtures and bestows. It's the appreciation for the love we're shown, In moments big and small, it's truly known. The COUNT() function should display the output as: Line 1 : 3 Line 2 : 4 Line 3 : 6 Line 4 : 1 OR Write a function Start_with_I() in Python, which should read a text file 'Gratitude.txt' and then display lines starting with 'I'. Example: If the file content is as follows: Gratitude is a humble heart's radiant glow, A timeless gift that nurtures and bestows. It's the appreciation for the love we're shown, In moments big and small, it's truly known.	3																																																					

	Then the output should be It's the appreciation for the love we're shown, In moments big and small, it's truly known.																																																	
29	Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem1, Sem2, Sem3, and their divisions. After the creation of the table, he entered data of 7 students in the table. <table><tr><th>ADNO</th><th>ROLLNO</th><th>SNAME</th><th>SEM1</th><th>SEM2</th><th>DIVISION</th></tr><tr><td>123</td><td>101</td><td>KARAN</td><td>366</td><td>410</td><td>I</td></tr><tr><td>245</td><td>102</td><td>NAMAN</td><td>300</td><td>350</td><td>I</td></tr><tr><td>128</td><td>103</td><td>ISHA</td><td>400</td><td>410</td><td>I</td></tr><tr><td>129</td><td>104</td><td>RENU</td><td>350</td><td>357</td><td>I</td></tr><tr><td>234</td><td>105</td><td>ARPIT</td><td>100</td><td>75</td><td>IV</td></tr><tr><td>187</td><td>106</td><td>SABINA</td><td>100</td><td>205</td><td>II</td></tr><tr><td>181</td><td>107</td><td>NEELAM</td><td>470</td><td>450</td><td>I</td></tr></table> Based on the data given above answer the following questions: - i Identify the columns which can be considered as candidate keys? - ii If 2 more columns are added and 3 rows are deleted from the table result, what will be the new degree and cardinality of the above table? - iii Write a statement to increase the SEM2 marks by 3% for the students securing marks between 70 to 100.	ADNO	ROLLNO	SNAME	SEM1	SEM2	DIVISION	123	101	KARAN	366	410	I	245	102	NAMAN	300	350	I	128	103	ISHA	400	410	I	129	104	RENU	350	357	I	234	105	ARPIT	100	75	IV	187	106	SABINA	100	205	II	181	107	NEELAM	470	450	I	3
ADNO	ROLLNO	SNAME	SEM1	SEM2	DIVISION																																													
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234	105	ARPIT	100	75	IV																																													
187	106	SABINA	100	205	II																																													
181	107	NEELAM	470	450	I																																													
30	Given a Dictionary <code>Stu_dict</code> containing marks of students for three test-series in the form <code>Stu_ID:(TS1, TS2, TS3)</code> as key-value pairs. Write a Python program with the following user-defined functions to perform the specified operations on a stack named <code>Stu_Stk</code> (i) <code>Push_elements(Stu_Stk, Stu_dict)</code> : It allows pushing IDs of those students, from the dictionary <code>Stu_dict</code> into the stack <code>Stu_Stk</code>, who have scored more than or equal to 80 marks in the TS3 Test. (ii) <code>Pop_elements(Stu_Stk)</code>: It removes all elements present inside the stack in LIFO order and prints them. Also, the function displays 'Stack Empty' when there are no elements in the stack. Call both functions to execute queries. For example: If the dictionary <code>Stu_dict</code> contains the following data: <code>Stu_dict = {5:(87,68,89), 10:(57,54,61), 12:(71,67,90), 14:(66,81,80), 18:(80,48,91)}</code> After executing <code>Push_elements()</code>, <code>Stk_ID</code> should contain [5,12,14,18] After executing <code>Pop_elements()</code>, The output should be: 18 14 12 5 Stack Empty	3																																																

Q No.	Questions Section-D (8 Marks)	Marks																				
31	Create a function <code>maxsalary()</code> in Python to read all the records from an already existing file <code>record.csv</code> which stores the records of various employees working in a department. Data is stored under various fields as shown below: <table><tr><th>E_code</th><th>E_name</th><th>Scale</th><th>Salary</th></tr><tr><td>A01</td><td>Bijesh Mehra</td><td>S4</td><td>65400</td></tr><tr><td>B02</td><td>Vikram Goel</td><td>S3</td><td>60000</td></tr><tr><td>C09</td><td>Suraj Mehta</td><td>S2</td><td>45300</td></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr></table> Function should display the row where the salary is maximum. Note: Assume that all employees have distinct salary.	E_code	E_name	Scale	Salary	A01	Bijesh Mehra	S4	65400	B02	Vikram Goel	S3	60000	C09	Suraj Mehta	S2	45300					4
E_code	E_name	Scale	Salary																			
A01	Bijesh Mehra	S4	65400																			
B02	Vikram Goel	S3	60000																			
C09	Suraj Mehta	S2	45300																			
.....																						
32	Consider a binary file 'INVENTORY.DAT' that stores information about products using tuple with the structure (ProductID, ProductName, Quantity, Price). Write a Python function <code>expensiveProducts()</code> to read the contents of 'INVENTORY.DAT' and display details of products with a price higher than Rs. 1000. Additionally, calculate and display the total count of such expensive products. For example: If the file stores the following data in binary format (1, 'ABC', 100, 5000) (2, 'DEF', 250, 1000) (3, 'GHI', 300, 2000) then the function should display Product ID: 1 Product ID: 3 Total expensive products: 2	4																				
Q No.	Questions Section-E (15 Marks)	Marks																				
33	Fun Media Services Ltd is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, DECORATORS, FOOD, and MEDIA. You as a network expert need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (i) to (v), keeping in mind the distances between various blocks/buildings and other given parameters. MUMBAI ADMIN FOOD MEDIA DECORATORS DELHI HEAD OFFICE	5																				

	Shortest distance between various buildings:																	
	<table><tr><th>FROM – TO</th><th>DISTANCE</th></tr><tr><td>ADMIN TO DECORATORS</td><td>90 meters</td></tr><tr><td>ADMIN TO MEDIA</td><td>75 meters</td></tr><tr><td>ADMIN TO FOOD</td><td>50 meters</td></tr><tr><td>DECORATORS TO FOOD</td><td>65 meters</td></tr><tr><td>DECORATORS TO MEDIA</td><td>50 meters</td></tr><tr><td>FOOD TO MEDIA</td><td>45 meters</td></tr><tr><td>DELHI Head Office to MUMBAI Campus</td><td>1475 KM</td></tr></table>	FROM – TO	DISTANCE	ADMIN TO DECORATORS	90 meters	ADMIN TO MEDIA	75 meters	ADMIN TO FOOD	50 meters	DECORATORS TO FOOD	65 meters	DECORATORS TO MEDIA	50 meters	FOOD TO MEDIA	45 meters	DELHI Head Office to MUMBAI Campus	1475 KM	
	FROM – TO	DISTANCE																
	ADMIN TO DECORATORS	90 meters																
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	FOOD TO MEDIA	45 meters																
	DELHI Head Office to MUMBAI Campus	1475 KM																
The number of computers at various buildings is as follows:																		
<table><tr><th>BUILDING</th><th>NUMBER OF COMPUTERS</th></tr><tr><td>ADMIN</td><td>110</td></tr><tr><td>DECORATORS</td><td>75</td></tr><tr><td>MEDIA</td><td>12</td></tr><tr><td>FOOD</td><td>20</td></tr></table>	BUILDING	NUMBER OF COMPUTERS	ADMIN	110	DECORATORS	75	MEDIA	12	FOOD	20								
BUILDING	NUMBER OF COMPUTERS																	
ADMIN	110																	
DECORATORS	75																	
MEDIA	12																	
FOOD	20																	
i. Suggest the most appropriate location of the server inside the MUMBAI campus (out of the 4 buildings). Justify your answer. ii. Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. iii. Which hardware device will you suggest to connect all the computers within each building? iv. Which of the following will you suggest to establish online face-to-face communication between the people in the Admin Office of the MUMBAI campus and the DELHI Head Office? a. Cable TV b. Email c. Video Conferencing d. Text Chat v. What type of network (out of PAN, LAN, MAN, WAN) will be set up in each of the following cases? a. The Mumbai campus gets connected with the Head Quarter in Delhi b. The computers connected in the MUMBAI campus																		
34	i. Mention any two differences between seek() and tell(). ii. Consider a file FLIGHT.DAT containing multiple records. The structure of each record is as shown below: [Fno, FName, Fare, Source, Destination] Write a function COPY_REC() in Python that copies all those records from FLIGHT.DAT where the source is DELHI and the destination is MUMBAI, into a new file RECORD.DAT OR i. Mention any two differences between binary files and csv files? ii. Consider a Binary file BOOK.DAT containing a dictionary having multiple elements. Each element is in the form BNO: [BNAME, BTYPE, PRICE] as key:value pair where BNO – Book Number BNAME – Book Name BTYPE - Book Type PRICE – Book price	2+3=5																

	Write a user-defined function, <code>findBook(price)</code>, that accepts price as parameter and displays all those records from the binary file <code>BOOK.DAT</code> which has a book price more than or equal to the price value passed as a parameter.	
35	i. Define the term constraint with respect to RDBMS. Give a suitable example. ii. Sameera maintains a database named <code>STORE</code> which contains a table named <code>ITEM</code> with the structure given below: • <code>Ino</code>(Item number)- integer • <code>Iname</code>(Item Name) – string • <code>Price</code> (Item Price) – float • <code>Discount</code> (Discount) – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost Help her to remove the record from the table <code>ITEM</code> for a particular value of item name input by the user. <pre>import mysql.connector as mysql con1= mysql.connect(host='localhost', user='root', password= '__', database='STORE') #Statement-1 mycursor = _____ #Statement-2 item_name = input("Enter the Item name to remove the record : ") query = _____ #Statement-3 mycursor.execute(query) con1._____ #Statement-4 print('Data Deleted successfully') con1.close()</pre> With reference to the above code, answer the following questions a) Complete statement 1 to establish the connection with the database. b) Write statement 2 to create the cursor object. c) Complete statement 3 to remove the record from the table <code>ITEM</code> based on the item name entered by the user d) Complete statement 4 to save the changes in the table. OR i. Write one difference between the alternate key and the candidate key. ii. A table named <code>ITEM</code> is created in a database <code>STORE</code>. The table contains multiple columns whose details are as shown below: • <code>Ino</code>(Item number)- integer • <code>Iname</code>(Item Name) – string • <code>Price</code> (Item Price) – float • <code>Discount</code> (Discount) – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost However, the table is to be interfaced with Python to perform certain tasks. The incomplete code is given below:	5

	<pre>_____ #Line 1 con1= mysql.connect(host='localhost', user = 'root', password = 'tiger', database='STORE') mycursor = con1._____ #Line 2 query = 'SELECT * FROM ITEM where Price > {}'.format(____) #Line3 mycursor.execute(query) data = mycursor._____ #Line 4 for rec in data: print(rec) con1.close()</pre> i. Complete line 1 to import the appropriate module. ii. Complete Line 2 to create the cursor object iii. Complete the query given in Line 3 to display details of all such items from the table ITEMS whose price is more than 5000. iv. Complete Line 4 to extract all the records.	
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CBSE Additional Practice Question Paper
Class: XII Session: 2023-24
Computer Science (083)
Marking Scheme

Q No.	Answer	Total Marks
1	a. per%marks	1
2	b. list.append(element)	1
3	b. lcomme T	1
4	b. One block of except statement cannot handle multiple exceptions	1
5	c. Statement 3	1
6	d. dump	1
7	d. dict_student.update(dict_marks)	1
8	b. mean()	1
9	c. 13.5	1
10	PPP – Point to Point Protocol VoIP - Voice Over Internet Protocol	1
11	b. LIKE operator	1
12	d. fetchone	1
13	b. r	1
14	a. file_object.seek(offset [, reference_point])	1
15	d. Interlinking of collection of webpages is called Internet.	1
16	c. TelNet	1
17	a. Both A and R are true and R is the correct explanation for A	1
18	c. A is True but R is False	1
19	Advantages: 1) A dedicated communication channel increases the quality of communication. 2) Suitable for long continuous communication. Disadvantages: 1) Resources are not utilized fully. 2) The time required to establish the physical link between the two stations is too long. <i>½ mark for each advantage and disadvantage</i> OR Web browser Purpose: Receives and displays web content.	2

	Function: Initiates requests to web servers, and receives and displays content for users. Web server Purpose: Delivers web content to clients. Function: Listens to incoming requests, processes them, and sends requested content to the client. Name of Web browsers: Google Chrome, Mozilla Firefox <i>1 mark for any one correct difference and 1/2 mark for each two correct examples</i>	
20	<pre>num1, num2 = 10, 45 while num1 % num2 == 0: num1+= 20 num2+= 30 else: print('hello')</pre> <i>½ mark for while</i> <i>½ mark for :</i> <i>½ mark for correct indentation (inside the block of while)</i> <i>½ mark for else</i>	2
21	<pre>def dispBook(BOOKS): for key in BOOKS: if BOOKS[key][0] not in "AEIOUaeiou": print(BOOKS[key].upper()) BOOKS = {1:"Python",2:"Internet Fundamentals ",3:"Networking ",4:"Oracle sets",5:"Understanding HTML"} dispBook(BOOKS)</pre> <i>½ mark for for loop</i> <i>1 mark for if condition</i> <i>½ mark for display in upper case</i> OR <pre>def FindWord(STRING,SEARCH): return (STRING . count (SEARCH)) str = input('Enter String : ') word = input('Enter word to search : ') print('The word', word, 'occurs', FindWord(str,word), 'times')</pre> <i>½ mark for input</i> <i>½ mark for print statement</i> <i>1 mark for counting the word and returning the value</i>	2
22	9\$14\$19\$5\$ <i>½ mark for 9\$</i> <i>½ mark for 14\$</i> <i>½ mark for 19\$</i> <i>½ mark for 5\$</i>	2
23	i. del D['Mumbai'] <i>1 mark for correct answer</i>	2

	ii. <code>print(S.split())</code> <i>1 mark for correct answer</i> OR <code>my_str = "Computer Science"</code> <code>alternate_chars = my_str[::-2]</code> <code>print(alternate_chars)</code> <i>1.5 mark for logic of alternate characters</i> <i>½ mark for printing alternate characters</i>																									
24	% (Percentage): - Matches any sequence of characters (including empty sequence). - Example: LIKE 'T%' matches all those strings starting with the letter 'T'. The string with just 1 character 'T' will also be considered. _ (Underscore): - Matches a single character. - Example: LIKE ' _ _T' on the other hand will search for a three letter string, whose 3rd letter is 'T'. At first two places any two character can appear. <i>1 mark for one correct difference. 1/2 mark each for correct example of each.</i> OR DROP is a DDL command in SQL and can be used to remove tables (or database). Example: 'DROP TABLE STUDENT;' will remove the table STUDENT from the database. DELETE is a DML command used to remove or delete rows/records from a table. Example: 'DELETE FROM STUDENT WHERE PER < 33;' will remove all those records from the table STUDENT where the percentage is less than 33. <i>1 mark for one correct difference. 1/2 mark each for correct example of each.</i>	2																								
25	- COUNT(*) returns the count of all rows in the table, whereas COUNT() is used with Column_Name passed as an argument and counts the number of non-NULL values in a column that is given as an argument. Hence the result may differ. - The SQL command with COUNT(*) may have higher value as it count all rows in the table. <i>1 mark for suitable reason</i> <i>1 mark for mentioning correct command</i>	2																								
26	(a) <table><tr><td>CODE</td><td>BNAME</td><td>TYPE</td><td>MNO</td><td>MNAME</td><td>ISSUEDATE</td></tr><tr><td>L102</td><td>Easy Python</td><td>Programming</td><td>M101</td><td>SNEH SINHA</td><td>2022-10-13</td></tr><tr><td>F102</td><td>Untold Story</td><td>Fiction</td><td>M103</td><td>SARTHAK</td><td>2021-02-23</td></tr><tr><td>C101</td><td>Juman Ji</td><td>Thriller</td><td>M102</td><td>SARA KHAN</td><td>2022-06-12</td></tr></table> <i>1 mark for correct answer</i>	CODE	BNAME	TYPE	MNO	MNAME	ISSUEDATE	L102	Easy Python	Programming	M101	SNEH SINHA	2022-10-13	F102	Untold Story	Fiction	M103	SARTHAK	2021-02-23	C101	Juman Ji	Thriller	M102	SARA KHAN	2022-06-12	3
CODE	BNAME	TYPE	MNO	MNAME	ISSUEDATE																					
L102	Easy Python	Programming	M101	SNEH SINHA	2022-10-13																					
F102	Untold Story	Fiction	M103	SARTHAK	2021-02-23																					
C101	Juman Ji	Thriller	M102	SARA KHAN	2022-06-12																					

(b)

(i)

NAME	PROJECT
Satyansh	P04
Ranjan	P01
Muneera	P01
Alex	P02
Akhtar	P04

½ mark for correct output

(ii)

NAME	SALARY
Akhtar	125000
Alex	75000

½ mark for correct output

(iii)

NAME	DOJ
Ranjan	2015-01-21
Akhtar	2015-02-01
Muneera	2018-08-19

½ mark for correct output

(iv)

Eid	Name	DOB	DOJ	Salary	Project
E01	Rannja	1990-07-12	2015-01-21	150000	P01
E03	Muneera	1996-11-15	2018-08-19	135000	P01

½ mark for correct output

27

(a)

(i)

FID	MIN(FEES)	MAX(FEES)
F01	12000	40000
F04	15000	17000
F03	8000	8000
F05	NULL	NULL

½ mark for correct answer

(ii)

AVG(SALARY)
29500

½ mark for correct answer

(iii)

FNAME	CNAME
Neha	Python
Neha	Computer Network

½ mark for correct answer

(iv)

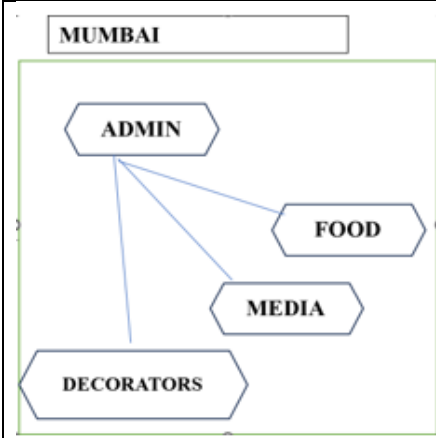
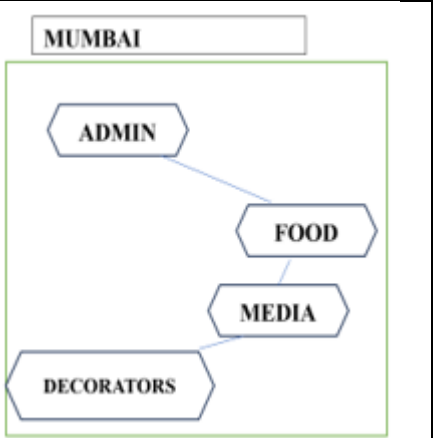
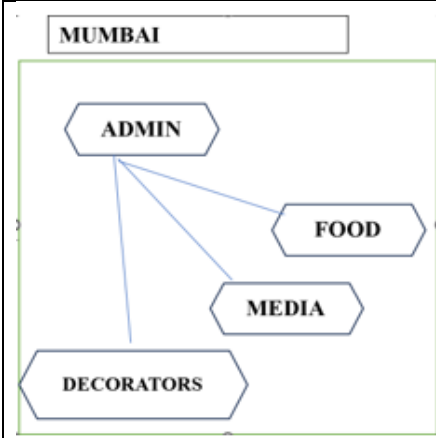
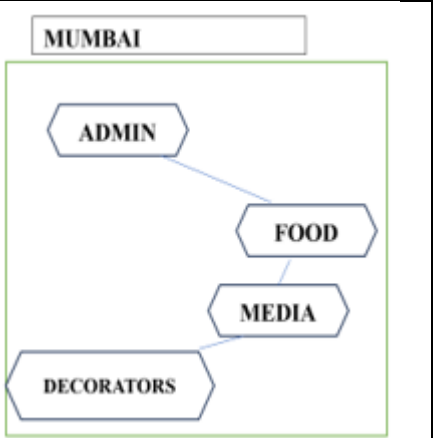
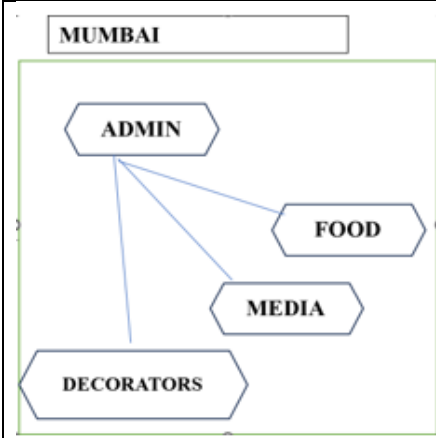
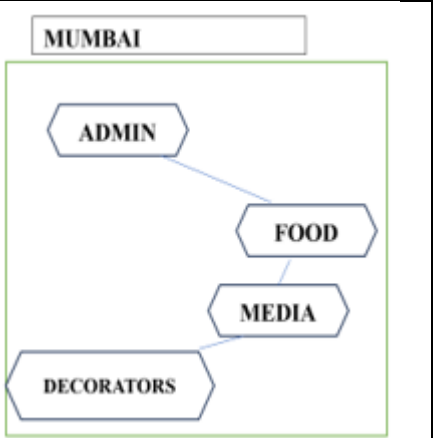
FNAME	CNAME	FEES
Anishma	Grid Computing	40000
Neha	Python	17000

½ mark for correct answer

3

	(b) DESC or DESCRIBE command <i>1 mark for correct answer</i>	
28	<pre>def Count(): F=open('Gratitude.txt') T=F.readlines() X=1 for i in T: print('Line',X,':',i.count('e')) X=X+1 F.close() Count()</pre> <i>½ mark for function header</i> <i>½ mark for opening and closing the file</i> <i>½ mark for reading lines</i> <i>½ mark for loop</i> <i>½ mark for count function/or any other alternate correct statement(s)</i> <i>½ mark for counter</i> OR <pre>def Start_with_I(): F=open('Gratitude.txt') T=F.readlines() for i in T: if i[0] in 'Ii': print(i,end='') F.close() Start_with_I()</pre> <i>½ mark for function header</i> <i>½ mark for opening and closing the file</i> <i>½ mark for reading lines</i> <i>½ mark for loop</i> <i>½ mark for if condition</i> <i>½ mark for print statment</i>	3
29	(i) Candidate Keys : ADMNO, ROLLNO <i>1 mark for correctly writing both names of candidate keys. OR ½ mark for specifying any one candidate key correctly.</i> (ii) Degree-8, Cardinality=4 <i>½ mark for degree and ½ mark for cardinality</i> (iii) Update result set SEM2=SEM2+.03*SEM2 where SEM2 between 70 and 100; <i>½ mark for writing Update result set part correctly</i> <i>½ mark for writing SEM2=SEM2+.03*SEM2 where SEM2 between 70 and 100; correctly.</i>	3
30	<pre>Stu_dict={5:(87,68,89), 10:(57,54,61), 12:(71,67,90), 14:(66,81,80), 18:(80,48,91)}</pre>	3

	<pre>Stu_Stk=[] def Push_elements(Stu_Stk, Stu_dict): for Stu_ID, marks in Stu_dict.items(): if marks[2]>=80: Stu_Stk.append(Stu_ID) def Pop_elements(Stu_Stk): while len(Stu_Stk)>0: print(Stu_Stk.pop()) if not Stu_Stk: print('Stack Empty') Push_elements(Stu_Stk, Stu_dict) Pop_elements(Stu_Stk)</pre> 1.5 marks for correct implementation of Push_elements() 1.5 marks for correct implementation of Pop_elements()	
31	<pre>import csv def maxsalary(): f=open('record.csv', 'r') reader=csv.reader(f) skip_header = True max= 0 for row in reader: if skip_header: skip_header = False else: if(int(row[3])>max): max=int(row[3]) rec=row print('Row with the highest salary : ', rec) f.close() maxsalary()</pre> ½ mark for importing module ½ mark for function definition ½ mark for opening and closing file ½ for reader object ½ for skipping first row (i.e. header) 1 mark for calculating maximum salary ½ mark for displaying record having maximum salary	4
32	<pre>import pickle def expensiveProducts(): with open('INVENTORY.DAT', 'rb') as file: expensive_count = 0 while True: try: product_data = pickle.load(file) product_id, product_name, quantity, price = product_data if price > 1000: print("Product ID:", product_id) expensive_count += 1 except EOFError: break print("Total expensive products: ", expensive_count) expensiveProducts()</pre> ½ mark for function definition	4

	1/2 mark for opening and closing file 1/2 mark for correct try and except block 1.5 mark identifying and displaying details of expensive products 1 mark for displaying count of expensive products													
33	i. The most appropriate location of the server inside the MUMBAI campus is ADMIN building due to the maximum number of computers in it. 1/2 mark for mentioning the branch and 1/2 mark for proper justification ii. Cable Layout <table><tr><th>Star Topology (Based on server location)</th><th>Bus Topology (Based on minimum distance between branches)</th></tr><tr><td></td><td></td></tr></table> 1 mark for drawing any valid cable layout iii. Switch or Hub 1mark for suggesting the correct device iv. c. Video Conferencing 1 mark for correct answer v. (a) WAN (b) LAN 1/2 mark for mentioning WAN and 1/2 mark for mentioning LAN	Star Topology (Based on server location)	Bus Topology (Based on minimum distance between branches)			5								
Star Topology (Based on server location)	Bus Topology (Based on minimum distance between branches)													
														
34	i. <table><tr><td></td><td>seek()</td><td>tell()</td></tr><tr><td>Purpose</td><td>Repositions the file pointer to a specific location within a file</td><td>Returns the current position of the file pointer</td></tr><tr><td>Syntax</td><td>seek(offset [,reference point])</td><td>tell()</td></tr><tr><td>Parameters</td><td>Requires specifying the offset and an optional reference point</td><td>Requires no parameters</td></tr></table> 2 marks for mentioning two correct differences. OR 1 marks for mentioning only one correct differences. ii. import pickle def COPY_REC(): In_file = open('FLIGHT.DAT','rb') out_file = open('RECORD.DAT','wb') try:		seek()	tell()	Purpose	Repositions the file pointer to a specific location within a file	Returns the current position of the file pointer	Syntax	seek(offset [,reference point])	tell()	Parameters	Requires specifying the offset and an optional reference point	Requires no parameters	5
	seek()	tell()												
Purpose	Repositions the file pointer to a specific location within a file	Returns the current position of the file pointer												
Syntax	seek(offset [,reference point])	tell()												
Parameters	Requires specifying the offset and an optional reference point	Requires no parameters												

```
while True:
    data = pickle.load(In_file)
    if data[3] == 'DELHI' and data[4] == 'MUMBAI':
        pickle.dump(data,out_file)
except:
    In_file.close()
    out_file.close()
```

COPY_REC()

½ mark for function definion
½ mark for correctly opening and closing file
½ mark for correct try and except block
1.5 marks for writing required data in RECORD.DAT

OR

i.

Binary	CSV
1. pickle module to be used	1. csv module is used
2. Data is stored in binary format(0s and 1s) and is not in human readable form using any plain text editor.	2. Data is stored in tabular fashion and comma separated by default. The file can be read by any spreadsheet software or text editor.
3. File extension .dat/.pdf/.exe etc.	3. File extension .csv

2 marks for mentioning two correct differences.
OR
1 marks for mentioning only one correct differences.

ii.

```
import pickle
def findBook(price):
    with open('BOOK.DAT', 'rb') as file:
        while True:
            try:
                book_record = pickle.load(file)
                for item in book_record:
                    book_price = book_record[item][2]
                    if book_price >= price:
                        print(item, book_record[item])
            except EOFError:
                break
```

findBook(50)

½ mark for function definion
½ mark for correctly opening and closing file
½ mark for correct try and except block
1.5 marks for displying required records

	SQL constraints are used to specify rules for the data in a table. Constraints are used to limit the type of data that can go into a table. Constraints – NOT NULL - Ensures that a column cannot have a NULL value UNIQUE - Ensures that all values in a column are different PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table <i>½ mark for correct definition, ½ mark for correct example (anyone)</i> (ii) a) password='tiger' b) mycursor = con1.cursor() c) query = 'delete from ITEM where Iname = "{}" '.format(item_name) d) con1.commit() <i>1 mark for each correct statement</i> OR (i) Candidate Key: A candidate key is a set of attributes in a relation that can uniquely identify each tuple (row). A relation can have multiple candidate keys, but only one of them is chosen as the primary key. Alternate Key: An alternate key is a candidate key that is not selected as the primary key. <i>1 mark for any one correct difference.</i> (ii) a) import mysql.connector as mysql b) mycursor = con1.cursor() c) query = 'SELECT * FROM ITEM where Price > {}'.format(5000) d) data = mycursor.fetchall() <i>1 mark for each correct statement</i>	
--	---	--

Series & RQPS

Set-4

प्रश्न-पत्र कोड
Q.P. Code

91

रोल नं.

Roll No.

2	3	6	9	4	7	9	1
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Candidates must write the Q.P. Code on the title page of the answer-book.



COMPUTER SCIENCE

Time allowed : 3 hours

Maximum Marks : 70

NOTE

-
- (I) Please check that this question paper contains 15 printed pages.
-
- (II) Please check that this question paper contains 35 questions.
-
- (III) Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
-
- (IV) Please write down the serial number of the question in the answer-book before attempting it.
-
- (V) 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions :

- (i) Please check this question paper contains 35 questions.
- (ii) The paper is divided into 5 Sections – A, B, C, D and E.
- (iii) Section A, consists of 18 questions (1 to 18). Each question carries 1 mark.
- (iv) Section B, consists of 7 questions (19 to 25). Each question carries 2 marks.
- (v) Section C, consists of 5 questions (26 to 30). Each question carries 3 marks.
- (vi) Section D, consists of 2 questions (31 to 32). Each question carries 4 marks.
- (vii) Section E, consists of 3 questions (33 to 35). Each question carries 5 marks.
- (viii) All programming questions are to be answered using Python Language only.

SECTION – A

1. State True or False : 1
While defining a function in Python, the positional parameters in the function header must always be written after the default parameters.
2. The **SELECT** statement when combined with _____ clause, returns records without repetition. 1
(a) **DISTINCT** (b) **DESCRIBE**
(c) **UNIQUE** (d) **NULL**
3. What will be the output of the following statement : 1
`print (16*5/4*2/5-8)`
(a) **-3.33** (b) **6.0**
(c) **0.0** (d) **-13.33**
4. What possible output from the given options is expected to be displayed when the following Python code is executed ? 1
`import random`
`Signal = ['RED', 'YELLOW', 'GREEN']`
`for K in range(2, 0, -1) :`
`R = random.randrange(K)`
`print (Signal[R], end = '#')`
(a) **YELLOW # RED #** (b) **RED # GREEN #**
(c) **GREEN # RED #** (d) **YELLOW # GREEN #**

5. In SQL, the aggregate function which will display the cardinality of the table is _____. 1
- (a) `sum()` (b) `count(*)`
(c) `avg()` (d) `sum(*)`
6. Which protocol out of the following is used to send and receive emails over a computer network? 1
- (a) `PPP` (b) `HTTP`
(c) `FTP` (d) `SMTP`
7. Identify the invalid Python statement from the following : 1
- (a) `d = dict()` (b) `e = {}`
(c) `f = []` (d) `g = dict{}`
8. Consider the statements given below and then choose the correct output from the given options : 1
- `myStr="MISSISSIPPI"`
`print(myStr[:4]+"#"+myStr[-5:])`
- (a) `MISSI#SIPPI` (b) `MISS#SIPPI`
(c) `MISS#IPPIS` (d) `MISSI#IPPIS`
9. Identify the statement from the following which will raise an error : 1
- (a) `print("A"*3)` (b) `print(5*3)`
(c) `print("15" + 3)` (d) `print("15" + "13")`
10. Select the correct output of the following code : 1
- `event="G20 Presidency@2023"`
`L=event.split(' ')`
`print(L[::-2])`
- (a) `'G20'` (b) `['Presidency@2023']`
(c) `['G20']` (d) `'Presidency@2023'`

11. Which of the following options is the correct unit of measurement for network bandwidth ?

1

(a) KB

(b) Bit

(c) Hz

(d) Km

12. Observe the given Python code carefully :

1

```
a=20
```

```
def convert(a):
```

```
    b=20
```

```
    a=a+b
```

```
convert(10)
```

```
print(a)
```

Select the correct output from the given options :

(a) 10

(b) 20

(c) 30

(d) Error

13. State whether the following statement is True or False :

1

While handling exceptions in Python, name of the exception has to be compulsorily added with **except** clause.

14. Which of the following is not a DDL command in SQL ?

1

(a) DROP

(b) CREATE

(c) UPDATE

(d) ALTER

15. Fill in the blank :

1

_____ is a set of rules that needs to be followed by the communicating parties in order to have a successful and reliable data communication over a network.

16. Consider the following Python statement :

F=open('CONTENT.TXT')

Which of the following is an invalid statement in Python ?

(a) **F.seek(1,0)**

(b) **F.seek(0,1)**

(c) **F.seek(0,-1)**

(d) **F.seek(0,2)**

Q. 17 and 18 are ASSERTION (A) and REASONING (R) based questions.
Mark the correct choice as

(a) Both (A) and (R) are true and (R) is the correct explanation for (A).

(b) Both (A) and (R) are true and (R) is not the correct explanation for (A).

(c) (A) is true but (R) is false.

(d) (A) is false but (R) is true.

17. **Assertion (A) :** CSV file is a human readable text file where each line has a number of fields, separated by comma or some other delimiter.

Reason (R) : **writerow()** method is used to write a single row in a CSV file.

18. **Assertion (A) :** The expression **"HELLO".sort()** in Python will give an error.

Reason (R) : **sort()** does not exist as a method/function for strings in Python.

SECTION - B

19. (A) (i) Expand the following terms :

1 + 1 = 2

XML, PPP

(ii) Give one difference between circuit switching and packet switching.

OR

(B) (i) Define the term web hosting.

(ii) Name any two web browsers.

2191

5

P.T.O.

20. The code given below accepts five numbers and displays whether they are even or odd :

2

Observe the following code carefully and rewrite it after removing all syntax and logical errors :

Underline all the corrections made.

```
def EvenOdd()  
    for i in range(5):  
        num=int(input("Enter a number"))  
        if num/2==0:  
            print("Even")  
        else:  
            print("Odd")  
EvenOdd()
```

21. (A) Write a user defined function in Python named **showGrades(S)** which takes the dictionary S as an argument. The dictionary, S contains **Name:[Eng,Math,Science]** as **key:value** pairs. The function displays the corresponding grade obtained by the students according to the following grading rules :

2

Average of Eng,Math,Science	Grade
>=90	A
<90 but >=60	B
<60	C

For example : Consider the following dictionary

S={"AMIT": [92,86,64], "NAGMA": [65,42,43], "DAVID": [92,90,88]}

The output should be :

AMIT - B

NAGMA - C

DAVID - A

OR

6

(B) Write a user defined function in Python named **Puzzle(W,N)** which takes the argument **W** as an English word and **N** as an integer and returns the string where every N^{th} alphabet of the word **W** is replaced with an underscore ("_").

For example : if **W** contains the word "**TELEVISION**" and **N** is 3, then the function should return the string "**TE_EV_SI_N**". Likewise for the word "**TELEVISION**" if **N** is 4, then the function should return "**TEL_VIS_ON**".

22. Write the output displayed on execution of the following Python code : 2

```
LS=["HIMALAYA", "NILGIRI", "ALASKA", "ALPS"]
```

```
D={}
```

```
for S in LS :
```

```
    if len(S)%4 == 0:
```

```
        D[S] = len(S)
```

```
for K in D :
```

```
    print(K,D[K], sep = "#")
```

23. (A) Write the Python statement for each of the following tasks using built-in functions/methods only : 1 + 1 = 2

(i) To remove the item whose key is "**NISHA**" from a dictionary named **Students**.

For example, if the dictionary **Students** contains {"**ANITA**":90, "**NISHA**":76, "**ASHA**":92}, then after removal the dictionary should contain {"**ANITA**":90, "**ASHA**":92}

(ii) To display the number of occurrences of the substring "**is**" in a string named **message**.

For example if the string **message** contains "**This is his book**", then the output will be 3.

OR

(B) A tuple named **subject** stores the names of different subjects. Write the Python commands to convert the given tuple to a list and thereafter delete the last element of the list.

24. (A) Ms. Veda created a table named **Sports** in a MySQL database, containing columns **Game_id**, **P_Age** and **G_name**.

2

After creating the table, she realized that the attribute, **Category** has to be added. Help her to write a command to add the **Category** column. Thereafter, write the command to insert the following record in the table :

Game_id : G42

P_Age : Above 18

G_name : Chess

Category : Senior

OR

- (B) Write the SQL commands to perform the following tasks :

(i) View the list of tables in the database, **Exam**.

(ii) View the structure of the table, **Term1**.

25. Predict the output of the following code :

2

```
def callon(b=20,a=10):
```

```
    b=b+a
```

```
    a=b-a
```

```
    print(b,"#",a)
```

```
    return b
```

```
x=100
```

```
y=200
```

```
x=callon(x,y)
```

```
print(x,"@",y)
```

```
y=callon(y)
```

```
print(x,"@",y)
```


SECTION - C

26. Write the output on execution of the following Python code :

3

```
s="Racecar Car Radar"
L=S.split()
for W in L :
    x=W.upper()
    if x==x[::-1]:
        for I in x:
            print(I,end="*")
    else:
        for I in W:
            print(I,end="#")
print()
```

27. Consider the table ORDERS given below and write the output of the SQL queries that follow :

$1 \times 3 = 3$

ORDNO	ITEM	QTY	RATE	ORDATE
1001	RICE	23	120	2023-09-10
1002	PULSES	13	120	2023-10-18
1003	RICE	25	110	2023-11-17
1004	WHEAT	28	65	2023-12-25
1005	PULSES	16	110	2024-01-15
1006	WHEAT	27	55	2024-04-15
1007	WHEAT	25	60	2024-04-30

- (i) SELECT ITEM, SUM(QTY) FROM ORDERS GROUP BY ITEM;
- (ii) SELECT ITEM, QTY FROM ORDERS WHERE ORDATE BETWEEN '2023-11-01' AND '2023-12-31';
- (iii) SELECT ORDNO, ORDATE FROM ORDERS WHERE ITEM = 'WHEAT' AND RATE >= 60;.

28. (A) Write a user defined function in Python named `showInLines()` which reads contents of a text file named `STORY.TXT` and displays every sentence in a separate line.

3

Assume that a sentence ends with a full stop (.), a question mark (?), or an exclamation mark (!).

For example, if the content of file `STORY.TXT` is as follows :

Our parents told us that we must eat vegetables to be healthy. And it turns out, our parents were right! So, what else did our parents tell?

Then the function should display the file's content as follows :

Our parents told us that we must eat vegetables to be healthy.

And it turns out, our parents were right!

So, what else did our parents tell?

OR

- (B) Write a function, `c_words()` in Python that separately counts and displays the number of uppercase and lowercase alphabets in a text file, `Words.txt`.

29. Consider the table **Projects** given below :

1 × 3 = 3

Table : Projects

P_id	Pname	Language	Startdate	Enddate
P001	School Management System	Python	2023-01-12	2023-04-03
P002	Hotel Management System	C++	2022-12-01	2023-02-02
P003	Blood Bank	Python	2023-02-11	2023-03-02
P004	Payroll Management System	Python	2023-03-12	2023-06-02

Based on the given table, write SQL queries for the following :

- Add the constraint, **primary key** to column **P_id** in the existing table **Projects**.
- To change the language to **Python** of the project whose id is **P002**.
- To delete the table **Projects** from MySQL database along with its data.

30. Consider a list named **Nums** which contains random integers.

Write the following user defined functions in Python and perform the specified operations on a stack named **BigNums**.

3

- (i) **PushBig()** : It checks every number from the list **Nums** and pushes all such numbers which have 5 or more digits into the stack, **BigNums**.
- (ii) **PopBig()** : It pops the numbers from the stack, **BigNums** and displays them. The function should also display "Stack Empty" when there are no more numbers left in the stack.

For example: If the list **Nums** contains the following data :

Nums = [213,10025,167,254923,14,1297653,31498,386,92765]

Then on execution of **PushBig()**, the stack **BigNums** should store :

[10025, 254923, 1297653, 31498, 92765]

And on execution of **PopBig()**, the following output should be displayed :

92765

31498

1297653

254923

10025

Stack Empty

SECTION - D

31. Consider the tables **Admin** and **Transport** given below :

1 × 4 = 4

Table : Admin

S_id	S_name	Address	S_type
S001	Sandhya	Rohini	Day Boarder
S002	Vedanshi	Rohtak	Day Scholar
S003	Vibhu	Raj Nagar	NULL
S004	Atharva	Rampur	Day Boarder

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Table : Transport

S_id	Bus_no	Stop_name
S002	TSS10	Sarai Kale Khan
S004	TSS12	Sainik Vihar
S005	TSS10	Kamla Nagar

Write SQL queries for the following :

- (i) Display the student name and their stop name from the tables **Admin** and **Transport**.
- (ii) Display the number of students whose **S_type** is not known.
- (iii) Display all details of the students whose name starts with 'V'.
- (iv) Display student id and address in alphabetical order of student name, from the table **Admin**.

32. Sangeeta is a Python programmer working in a computer hardware company. She has to maintain the records of the peripheral devices. She created a csv file named **Peripheral.csv**, to store the details. The structure of **Peripheral.csv** is :

[P_id, P_name, Price]

where

P_id is Peripheral device ID (integer)

P_name is Peripheral device name (String)

Price is Peripheral device price (integer)

Sangeeta wants to write the following user defined functions :

Add_Device() : to accept a record from the user and add it to a csv file, **Peripheral.csv**.

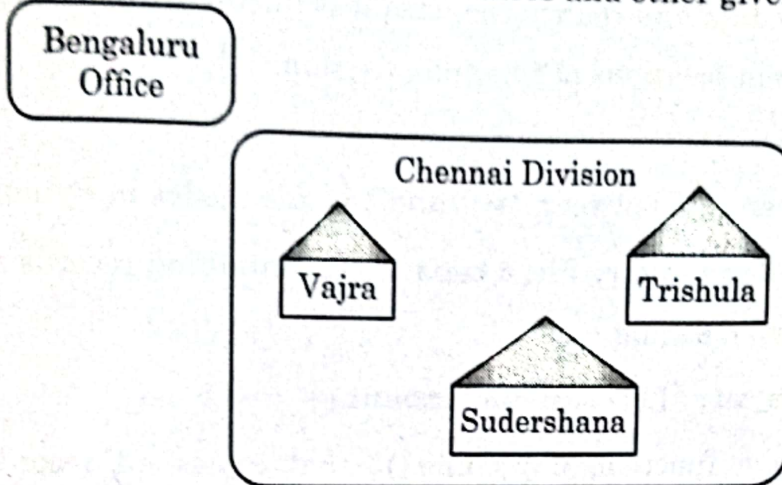
Count_Device() : To count and display number of peripheral devices whose price is less than 1000.

SECTION - E

88. Infotainment Ltd. is an event management company with its prime office located in Bengaluru. The company is planning to open its new division at three different locations in Chennai named as - Vajra, Trishula and Sudershana.

$1 \times 5 = 5$

You, as a networking expert need to suggest solutions to the questions in part (i) to (v), keeping in mind the distances and other given parameters.



Distances between various locations :

Vajra to Trishula	350 m
Trishula to Sudershana	415 m
Sudershana to Vajra	300m
Bengaluru Office to Chennai	2000 km

Number of computers installed at various locations :

Vajra	120
Sudershana	75
Trishula	65
Bengaluru Office	250

- (i) Suggest and draw the cable layout to efficiently connect various locations in Chennai division for connecting the digital devices.
- (ii) Which block in Chennai division should host the server ? Justify your answer.
- (iii) Which fast and effective wired transmission medium should be used to connect the prime office at Bengaluru with the Chennai division ?

- (iv) Which network device will be used to connect the digital devices within each location of Chennai division so that they may communicate with each other ?
- (v) A considerable amount of data loss is noticed between different locations of the Chennai division, which are connected in the network. Suggest a networking device that should be installed to refresh the data and reduce the data loss during transmission to and from different locations of Chennai division.

34. (A) (i) Differentiate between 'w' and 'a' file modes in Python. $2 + 3 = 5$

- (ii) Consider a binary file, `items.dat`, containing records stored in the given format :

```
{item_id: [item_name, amount]}
```

Write a function, `Copy_new()`, that copies all records whose amount is greater than 1000 from `items.dat` to `new_items.dat`.

OR

- (B) (i) What is the advantage of using `with` clause while opening a data file in Python ? Also give syntax of `with` clause.

- (ii) A binary file, `EMP.DAT` has the following structure :

```
[Emp_Id, Name, Salary]
```

where

`Emp_Id` : Employee id

`Name` : Employee Name

`Salary` : Employee Salary

Write a user defined function, `disp_Detail()`, that would read the contents of the file `EMP.DAT` and display the details of those employees whose salary is below 25000.

35. (A) (i) Define cartesian product with respect to RDBMS. 1 + 4 = 5

- (ii) Sunil wants to write a program in Python to update the quantity to 20 of the records whose item code is 111 in the table named **shop** in MySQL database named **Keeper**.

The table **shop** in MySQL contains the following attributes :

- **Item_code**: Item code (Integer)
- **Item_name**: Name of item (String)
- **Qty**: Quantity of item (Integer)
- **Price**: Price of item (Integer)

Consider the following to establish connectivity between Python and MySQL:

- **Username**: admin
- **Password**: Shopping
- **Host**: localhost

OR

- (B) (i) Give any two features of SQL.

- (ii) Sumit wants to write a code in Python to display all the details of the passengers from the table **flight** in MySQL database, **Travel**. The table contains the following attributes :

F_code: Flight code (String)

F_name: Name of flight (String)

Source: Departure city of flight (String)

Destination: Destination city of flight (String)

Consider the following to establish connectivity between Python and MySQL :

- **Username** : root
- **Password** : airplane
- **Host** : localhost

Series & RQPS/S**Set-4****Q.P. Code****91/S**

Roll No.

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Candidates must write the Q.P. Code on the title page of the answer-book.

**COMPUTER SCIENCE***Time allowed : 3 hours**Maximum Marks : 70***NOTE**

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General Instructions :

Please read the instructions carefully.

- *This question paper has 5 Sections : Sections A, B, C, D, E.*
- *All questions are compulsory. However, an internal choice of approximately 30% is provided.*
- *Section A has 18 questions carrying 1 mark each.*
- *Section B has 7 Very Short Answer (VSA) type questions carrying 2 marks each.*
- *Section C has 5 Short Answer (SA) type questions carrying 3 marks each.*
- *Section D has 2 Long Answer (LA) type question carrying 4 marks.*
- *Section E has 3 Source-based / Case-based / Passage-based questions carrying 5 marks each.*

SECTION A

18×1=18

1. State True or False :
"In Python, tuple is a mutable data type". 1
2. The primary key is selected from the set of _____. 1
(A) composite keys (B) alternate keys
(C) candidate keys (D) foreign keys
3. What will be the output of the following statement ? 1
`print(6+5/4**2//5+8)`
(A) -14.0 (B) 14.0
(C) 14 (D) -14
4. Select the correct output of the code : 1
`s = "text#next"`
`print(s.strip("t"))`
(A) `ext#nex` (B) `ex#nex`
(C) `text#nex` (D) `ext#next`

5. In SQL, which command will be used to add a new record in a table ? 1
- (A) UPDATE
(B) ADD
(C) INSERT
(D) ALTER TABLE
6. 'L' in HTML stands for : 1
- (A) Large (B) Language
(C) Long (D) Laser
7. Identify the valid Python identifier from the following : 1
- (A) 2user (B) user@2
(C) user_2 (D) user 2
8. Consider the statements given below and then choose the correct output from the given options : 1
- ```
Game="World Cup 2023"
print(Game[-6::-1])
```
- (A) CdrW (B) ce o  
(C) puC dlroW (D) Error
9. Predict the output of the following Python statements : 1
- ```
>>>import statistics as s  
>>>s.mode ([10, 20, 10, 30, 10, 20, 30])
```
- (A) 30
(B) 20
(C) 10
(D) 18.57

10. Which of the following output will never be obtained when the given code is executed? 1

```
import random
Shuffle = random.randrange(10)+1
Draw = 10*random.randrange(5)
print ("Shuffle", Shuffle, end="#")
print ("Draw", Draw)
```

- (A) Shuffle 1 # Draw 0
- (B) Shuffle 10 # Draw 10
- (C) Shuffle 10 # Draw 0
- (D) Shuffle 11 # Draw 50

11. Ethernet card is also known as : 1

- (A) LIC
- (B) MIC
- (C) NIC
- (D) OIC

12. What will be the output of the given code ? 1

```
a=10
def convert(b=20):
    a=30
    c=a+b
    print(a,c)
convert(30)
print(a)
```

13. For the following Python statement : 1

N = (25)

What shall be the type of N ?

- (A) Integer
- (B) String
- (C) Tuple
- (D) List

14. Mr. Ravi is creating a field that contains alphanumeric values and fixed lengths. Which MySQL data type should he choose for the same ? 1

- (A) VARCHAR
- (B) CHAR
- (C) LONG
- (D) NUMBER

15. Fill in the blank : 1

The full form of WWW is _____.

16. _____ files are stored in a computer in a sequence of bytes. 1

- (A) Text
- (B) Binary
- (C) CSV
- (D) Notepad

Questions No.17 and 18 are Assertion and Reason type questions. Each question consists of two statements, namely, Assertion (A) and Reason (R). Select the most suitable option considering the Assertion and Reason.

17. Assertion (A) : Global variables are accessible in the whole program. 1

Reason (R) : Local variables are accessible only within a function or block in which it is declared.

- (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are true, but Reason (R) is **not** the correct explanation of Assertion (A).
- (C) Assertion (A) is true, but Reason (R) is false.
- (D) Assertion (A) is false, but Reason (R) is true.

18. Assertion (A) : If numeric data are to be written to a text file, the data needs to be converted into a string before writing to the file. 1

Reason (R) : write() method takes a string as an argument and writes it to the text file.

- (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are true, but Reason (R) is **not** the correct explanation of Assertion (A).
- (C) Assertion (A) is true, but Reason (R) is false.
- (D) Assertion (A) is false, but Reason (R) is true.

SECTION B

7×2=14

19. (a) (i) Expand the following terms :
URL, XML

1+1=2

- (ii) Give one difference between HTTP and FTP.

OR

- (b) (i) Define the term IP address with respect to network.

- (ii) What is the main purpose of a Router ?

1+1=2

20. Observe the following code carefully and rewrite it after removing all syntactical errors. Underline all the corrections made. 2

```
def lfunc() :
```

```
    a=input("Enter a number")
```

```
    if a>=33
```

```
        print("Promoted to next class")
```

```
    ELSE:
```

```
        print("Repeat")
```


21. (a) Write the definition of a method/function **SearchOut(Teachers, TName)** to search for **TName** from a list **Teachers**, and display the position of its presence. 2

For example :

If the **Teachers** contain ["Ankit", "Siddharth", "Rahul", "Sangeeta", "rahul"]

and **TName** contains "Rahul"

The function should display

Rahul at 2

rahul at 4

OR

- (b) Write the definition of a method/function **Copy_Prime(lst)** to copy all the prime numbers from the list **lst** to another list **lst_prime**. 2

22. Predict the output of the following code : 2

```
d={"IND":"DEL", "SRI":"COL", "CHI":"BEI"}
```

```
str1=""
```

```
for i in d:
```

```
    str1=str1+str(d[i])+"@"
```

```
    str2=str1[:-1]
```

```
print (str2)
```

23. (a) Write the Python statement for **each** of the following tasks using BUILT-IN functions/methods only : 1+1=2

(i) To delete an element 10 from the list **lst**.

(ii) To replace the string **"This"** with **"That"** in the string **str1**.

OR

- (b) A dictionary **dict2** is copied into the dictionary **dict1** such that the common key's value gets updated. Write the Python commands to do the task and after that empty the dictionary **dict1**. 2

24. (a) Mr. Atharva is given a task to create a database, **Admin**. He has to create a table, **users** in the database with the following columns : $1+1=2$

User_id - int

User_name - varchar(20)

Password - varchar(10)

Help him by writing SQL queries for both tasks.

OR

- (b) Ms. Rita is a database administrator at a school. She is working on the table, **student** containing the columns like **Stud_id**, **Name**, **Class** and **Stream**. She has been asked by the Principal to strike off the record of a student named **Rahul** with **student_id** as 100 from the school records and add another student who has been admitted with the following details :

$1+1=2$

Stud_id - 123

Name - Rajeev

Class - 12

Stream - Science

Help her by writing SQL queries for both tasks.

25. Predict the output of the following code :

2

```
def Total (Num=10):
```

```
    Sum=0
```

```
    for C in range(1,Num+1):
```

```
        if C%2!=0:
```

```
            continue
```

```
        Sum+=C
```

```
    return Sum
```

```
print(Total(4),end="$")
```

```
print(Total(),sep="@")
```


SECTION C**5×3=15**

26. Predict the output of the Python code given below :

3

```
s="India Growing"
```

```
n = len(s)
```

```
m=""
```

```
for i in range (0, n) :
```

```
    if (s[i] >= 'a' and s[i] <= 'm') :
```

```
        m = m + s [i].upper()
```

```
    elif (s[i] >= 'O' and s[i] <= 'z') :
```

```
        m = m +s [i-1]
```

```
    elif (s[i].isupper()):
```

```
        m = m + s[i].lower()
```

```
    else:
```

```
        m = m + '@'
```

```
print (m)
```

27. Consider the table **Stationery** given below and write the output of the SQL queries that follow.

3

Table : Stationery

ITEMNO	ITEM	DISTRIBUTOR	QTY	PRICE
401	Ball Pen 0.5	Reliable Stationers	100	16
402	Gel Pen Premium	Classic Plastics	150	20
403	Eraser Big	Clear Deals	210	10
404	Eraser Small	Clear Deals	200	5
405	Sharpener Classic	Classic Plastics	150	8
406	Gel Pen Classic	Classic Plastics	100	15

- (i) SELECT DISTRIBUTOR, SUM(QTY) FROM STATIONERY GROUP BY DISTRIBUTOR;
- (ii) SELECT ITEMNO, ITEM FROM STATIONERY WHERE DISTRIBUTOR = "Classic Plastics" AND PRICE > 10;
- (iii) SELCET ITEM, QTY * PRICE AS "AMOUNT" FROM STATIONERY WHERE ITEMNO = 402;

28. (a) Write a method/function **COUNTWORDS ()** in Python to read contents from a text file **DECODE.TXT**, to count and return the occurrence of those words, which are having 5 or more characters. 3

OR

- (b) Write a method/function **COUNTLINES ()** in Python to read lines from a text file **CONTENT.TXT**, and display those lines, which have @ anywhere in the line. 3

For example :

If the content of the file is :

Had an amazing time at the concert last night with
@MusicLoversCrew.

Excited to announce the launch of our new website!

G20 @ India

The method/function should display

Had an amazing time at the concert last night with
@MusicLoversCrew

G20 @ India

29. Consider the table **Rent_cab**, given below :

Table : **Rent_cab**

Vcode	VName	Make	Color	Charges
101	Big car	Carus	White	15
102	Small car	Polestar	Silver	10
103	Family car	Windspeed	Black	20
104	Classic	Studio	White	30
105	Luxury	Trona	Red	9

Based on the given table, write SQL queries for the following : 3

(i) Add a primary key to a column name **Vcode**.

(ii) Increase the charges of all the cabs by 10%.

(iii) Delete all the cabs whose maker name is "Carus".

30. A dictionary, **d_city** contains the records in the following format :

{state:city}

Define the following functions with the given specifications :

3

- (i) **push_city(d_city)**: It takes the dictionary as an argument and pushes all the cities in the stack **CITY** whose states are of more than 4 characters.
- (ii) **pop_city()**: This function pops the cities and displays "**Stack empty**" when there are no more cities in the stack.

SECTION D

2×4=8

31. Consider the tables **GAMES** and **PLAYERS** given below :

Table : **GAMES**

GCode	GameName	Type	Number	PrizeMoney
101	Carrom Board	Indoor	2	5000
102	Badminton	Outdoor	2	12000
103	Table Tennis	Indoor	4	NULL
104	Chess	Indoor	2	9000
105	Lawn Tennis	Outdoor	4	25000

Table : **PLAYERS**

PCode	Name	GCode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

Write SQL queries for the following :

4

- (i) Display the game type and average number of games played in each type.
- (ii) Display prize money, name of the game, and name of the players from the tables **Games** and **Players**.
- (iii) Display the types of games without repetition.
- (iv) Display the name of the game and prize money of those games whose prize money is known.

32. Mr. Mahesh is a Python Programmer working in a school. He has to maintain the records of the sports students. He has created a csv file named **sports.csv**, to store the details. The structure of **sports.csv** is :
[sport_id, competition, prize_won]

where

sport_id, is Sport id (integer)

competition is competition name (string)

prize_won is ("Gold", "Silver", "Bronze")

Mr. Mahesh wants to write the following user-defined functions :

Add_detail(): to accept the detail of a student and add to a csv file, "sports.csv".

Count_Medal(): to display the name of competitions in which students have won "Gold" medal.

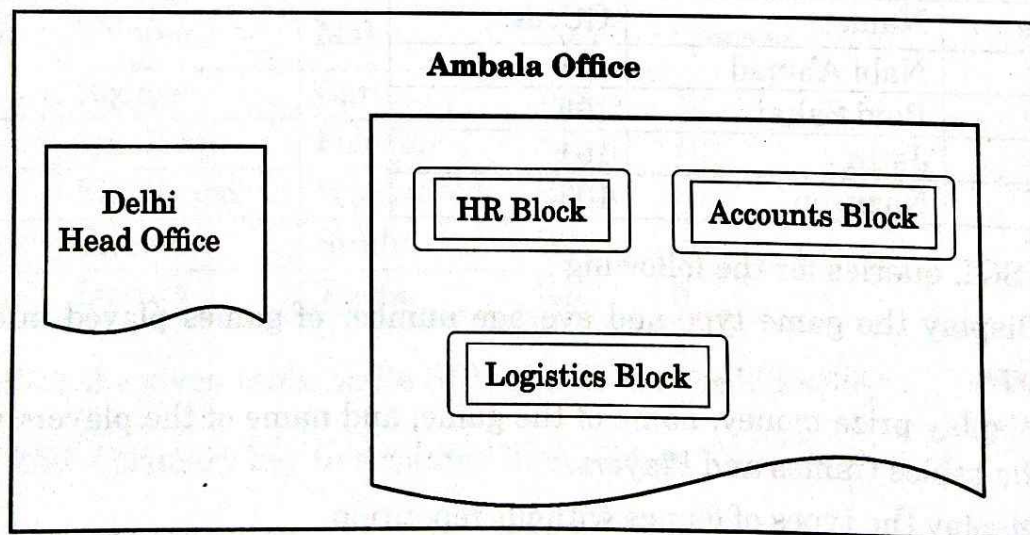
Help him in writing the code of both the functions.

4

SECTION E

3×5=15

33. Logistic Technologies Ltd. is a Delhi based organization which is expanding its office set-up to Ambala. At Ambala office campus, they are planning to have 3 different blocks for HR, Accounts and Logistics related work. Each block has a number of computers, which are required to be connected to a network for communication, data and resource sharing.



As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (v), keeping in mind the distances between various block/locations and other given parameters.

Distances between various blocks/locations :

HR Block to Accounts Blocks	400 meters
Accounts Block to Logistics Block	200 meters
Logistics Block to HR Block	150 meters
Delhi Head Office to Ambala Office	220 Km

Number of computers installed at various blocks are as follows :

HR Block	70
Accounts Block	40
Logistics Block	30

- (i) Suggest the most appropriate block/location to house the SERVER in the Ambala office. Justify your answer.
- (ii) Suggest the best wired medium to efficiently connect various blocks within the Ambala office compound.
- (iii) Draw an ideal cable layout (Block to Block) for connecting these blocks for wired connectivity.
- (iv) The company wants to schedule an online conference between the managers of Delhi and Ambala offices. Which protocol will be used for effective voice communication over the Internet ?
- (v) Which kind of network will it be between Delhi office and Ambala office ?

5

34. (a) (i) What is the main purpose of **seek()** and **tell()** method ?
(ii) Consider a binary file, **Cinema.dat** containing information in the following structure :

[**Mno, Mname, Mtype**]

Write a function, **search_copy()**, that reads the content from the file **Cinema.dat** and copies all the details of the "Comedy" movie type to file named **movie.dat**.

5

OR

- (b) (i) Give one difference between **write()** and **writeline()** function in text file.
(ii) A Binary file, "**Items.dat**" has the following structure :

[**Icode, Description, Price**]

Where

Icode - Item code

Description - Detail of item

Price - Price of item

Write a function **Add_data()**, that takes **Icode**, **Description** and **Price** from the user and writes the information in the binary file "**Items.dat**".

5

35. (a) (i) Define the term foreign key with respect to RDBMS.
(ii) Sangeeta wants to write a program in Python to delete the record of a candidate "Raman" from the table named **Placement** in **MySQL** database, **Agency**:
The table **Placement** in **MySQL** contains the following attributes :

CName - String

Dept - String

Place - String

Salary - integer

Note the following to establish connectivity between Python and **MySQL** :

- Username - root
- Password - job
- Host - localhost

Help Sangeeta to write the program in Python for the above mentioned task.

OR

5

(b) (i) Give one difference between CHAR and VARCHAR datatype in MySQL.

(ii) Rahim wants to write a program in Python to insert the following record in the table named **Bank_Account** in MySQL database, **Bank** :

- **Accno** – integer
- **Cname** – string
- **Atype** – string
- **Amount** – float

Note the following to establish connectivity between Python and MySQL :

- **Username** – **admin**
- **Password** – **root**
- **Host** – **localhost**

The values of fields **Accno**, **Cname**, **Atype** and **Amount** have to be accepted from the user. Help Rahim to write the program in Python.

5