Series P/PB2/1

SET 1

CLASS XII PRE-BOARD EXAMINATION – 2025-26

Q.P. Code: 083/2/1

Roll No. | | | | | | | | |

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

- Please check that this question paper contains **10** printed pages.
- Please check that this question paper contains **37** questions.
- 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 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 students will read the question paper only and will not write any answer on the answer-book during this period.

COMPUTER SCIENCE

Time allowed : 3 hours ***Maximum Marks : 70***

General Instructions:

Read the following instructions very carefully and strictly follow them :

*This question paper contains **37** questions.*

*(i) **All** questions are **compulsory**. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions*

*(ii) The paper is divided into **5** Sections- **A, B, C, D** and **E**.*

*(iii) **Section A**, consists of **21** questions (1 to 21). Each question carries **1** Mark.*

*(iv) **Section B** consists of **7** questions (22 to 28). Each question carries **2** Marks.*

*(v) **Section C** consists of **3** questions (29 to 31). Each question carries **3** Marks.*

*(vi) **Section D** consists of **4** questions (32 to 35). Each question carries **4** Marks.*

*(vii) **Section E** consists of **2** questions (36 to 37). Each question carries **5** Marks.*

(viii) All programming questions are to be answered using Python Language only.

(ix) 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 whether the following statement is True or False: Using the math module, the output of the below statements will be 5 import math abs(math.sqrt(25))	1
2	If a list L is created as >>> L=[1,2,3,'a',['apple','green'],5,6,7,['red','orange']] then what will be the output of the following statements: >>>L[4][1] A) apple B) green C) red D) orange	1
3	Consider the given expression: print(True or not (False or False)) Which of the following will be the correct output of the given expression? A) True B) False C) true D) TRUE	1
4	Consider: Table A has 10 rows, table B has 5 matching rows with Table A. What will be the equi JOIN return? A) 10 rows B) 5 rows C) 15 rows D) 0 rows	1
5	What will be the output of the following Python code? s = "Python" print(s[-4:-1]) A) tho B) hon C) yth D) thon	1

6	Write the output of the following Python code :
	for i in range(3):
	if i == 1:
	break
	print(i)
	A) 0 1 2 B) 0 c) 1 D) 2
		1

7	What will be the output of the following Python statement: print(16 - (4 + 2) * 5 + 2**3 * 4) A)232 B)170 C)18 D)220	1
8	What is the correct order of SQL clauses? A) SELECT → WHERE → GROUP BY → HAVING B) SELECT → HAVING → GROUP BY → WHERE C) GROUP BY → WHERE → SELECT → HAVING D) WHERE → SELECT → GROUP BY → HAVING	1
9	What will be the output of the following Python code? try: print(1,end="") a = 5 / 0 print(2,end="")	1

	except: print(3) A) 1 2 3 B) 13 C) 3 D) 1 3	
10	What will be the output of the following Python code? d = {"a": 1, "b": 2,'a':3} for k in d: print(k, end=" ") A) a b a B) 1 2 3 C) ("a", 1), ("b", 2) D) a b	1
11	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? 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=" #") A)) 50 #60 #70 # B) 20 #30 #40 # C) 40 #50 #60 #70# D) 30 #40 #50 #60 #	1
12	What will be the output of the following Python code? a=10 def call(): global a a=15 b=20 print(a,end=" ") call() print(a) A)10 10 B)15 10 C)15 15 D)10 15	1
13	A table **STUDENT** has the following attributes: Student_ID, Name, Class, Section, Phone_No Initially, the table contains **40 records**. If the attribute **Phone_No** is removed and **Email_ID** is added, while **10 new records** are inserted, what will be the **degree and cardinality** of the table? A) Degree = 5, Cardinality = 50 B) Degree = 4, Cardinality = 40 C) Degree = 5, Cardinality = 40 D) Degree = 5, Cardinality = 50	1
14	What will be the output of the following code? print("ComputerScience".split("er",2)) A) ['Computer', 'Science'] B) ['Comput', 'Science'] C) [“Comput”,”erScience”] D) [“Comput”,”er”,”Science”]	1

15	Which SQL operation can change the degree of a table? A) INSERT INTO B) UPDATE C) ALTER TABLE D) DELETE	1
16	Which DDL command is used to add a primary key constraint to an existing table? A) ADD PRIMARY KEY B) ALTER TABLE … ADD PRIMARY KEY C) CREATE PRIMARY KEY D) MODIFY TABLE PRIMARY KEY	1
17	TCP stands for _____. A) Transmission Control Protocol B) Transfer Control Protocol C) Transfer Connection Protocol D) Transmission Connection Protocol	1
18	Which device sends data only to the intended recipient? A) Hub B) Switch C) Repeater D) Modem	1
19	Which of the following is used to create a webpage? A) C++ B) HTML C) SQL D) Python	1
	Q. No. 20 and 21 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): append() can add multiple elements to a list in a single call. Reason (R): append() always adds a single object at the end of the list.	1
21	Assertion (A): Primary key values can be NULL. Reason (R): NULL values indicate absence of data**.**	1
	Section-B (7 x 2=14 Marks)	Marks
22	Explain the difference between mutable and immutable data type in Python with a suitable example. **OR** Difference between built-in and user-defined functions in python with suitable example.	2
23	The code provided below is intended to **remove all vowels from a given string** and return the resulting string. However, there are syntax and logical errors in the code. Rewrite it after removing all the errors. Also, **underline all the corrections made**. Def remove_vowels(st): vowels = "aeiouAEIOU" new_str = "" for char in st if char not in vowels	2

	new_str = new_str + char return new_str s = "Hello World" print(remove_vowels(s))	
24	A. (Answer using Python built-in methods/functions only): I. S="I love Python". Replace all occurrences of "Python" with "Java" in S II. Write a statement to clear all elements of list L1 . **OR** B.Write python statement to do the following: text = " Python is a simple language " I. Remove leading and trailing spaces II. Count the number of times "a" occurs	2
25	Write a function modlst(L) that accepts a list of numbers as argument and increases the value of the elements by 10 if the elements are divisible by 5. Also write a proper call statement for the function. For example:If list L contains [3,5,10,12,15]Then the modlst() should make the list L as [3,15,20,12,25] **OR** Write a user-defined function find_name (name), where name is an argument in Python to delete phone number from a dictionary phone_book on the basis of the name, where name is the key.	2
26	Predict the output of the Python code given below : empdict={'Eno':[1,2,3,4], 'Ename' : ['Raj', 'Seema', 'John', 'Smith'], 'Sal':[10000, 20000, 30000, 40000]} print(empdict['Ename'][0], empdict['Sal'][0])	2
27	A.Write suitable commands to do the following in MySQL. Create a table Student with fields: Roll (INT), Name (VARCHAR(20)), Marks (INT). **OR** B. Differentiate between alter and update query in SQL with a suitable example.	2
28	A. Define the following terms: I. Repeater II. Router **OR**	2

	B. I. Expand the following terms: NIC and URL II. What is topology? Name any two topologies.	
Q No.	**Section-C (3 x 3 = 9 Marks)**	**Marks**
29	Write a method/function COUNT_BLANK_SPACES() in Python to read content from a text file STORY.TXT, and display the count of blank spaces in the text file. **OR** Write a method/function DISPLAYWORDS() in python to read content from a text file POEM.TXT, and display those words, which are less than 4 characters.	3
30	A list contains following record of a doctor [Doc_ID, Doc_name, Phone_number, Speciality] Write the following user defined functions to perform given operations on the stack named status: I. Push_element() - To Push an object containing Doc_ID and Doc_name of doctors who specialize in Anesthesia 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 Doctors' details are:** **['D01', "Gurdas", "99999999999","Anesthesia"]** **["D02", "Julee", "8888888888","cardiology"]** **[D03","Murugan","77777777777","Anesthesia"] ["D04","Ashmit", "1010101010","Medicine"]** **The stack should contain** **['D03', 'Murugan']** **['D01', 'Gurdas']** **The output should be:** **['D03', 'Murugan']** **['D01', 'Gurdas']** **Stack Empty**	3

31 | 3

A).Predict the output of the following Python code:

```
s="3 & Four"
n = len(s)
m=""
for i in range(0, n):
    if (s[i] >= 'A' and s[i] <= 'Z'):
        m = m +s[i].upper()
    elif (s[i] >= 'a' and s[i] <= 'z'):
        m = m +s[i-1]
    if (s[i].isdigit()):
        m = m + s[i].lower()
    else:
        m = m +'-'
print(m)
```

OR

B)Predict the output of the following Python code:

```
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("FUN",'DAY')
print(a,b)
```

Q.No	**Section-D (4 x 4 = 16 Marks)**	Marks

32 | 4

Consider the table BOOKS **as given below:**

Table :Books

BID	**BNAME**	**AUNAME**	**PRICE**	**TYPE**	**QTY**
COMP11	LET US C	YASHWANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	150	GEOGRAPHY	20
HIST66	HISTORY	R BALA	210	HISTORY	25
COMP12	MY FIRST C	VINOD DUA	330	COMPUTER	18
LITR88	MY DREAMS	ARVIND AD	470	NOVEL	24

<table>
<tr><td></td><td>A. Write the following queries:
I. To display the total quantity for each type of book whose total quantity exceeds 20.
II. To display the records of Books table sorted by book name in descending order
III. To display the distinct type of books from the Books table.
IV. To display the records of Books whose author name end with the letter 'A'.
OR
B. Predict the output of the following:
I. SELECT * FROM Books where Type=' HISTORY ';
II. SELECT BNAME,AUNAME FROM Books WHERE TYPE LIKE 'N%';
III. SELECT COUNT(*) FROM Books WHERE TYPE in (' COMPUTER ', ' GEOGRAPHY ');
IV. SELECT AVG(PRICE) FROM Books where TYPE=' COMPUTER ';</td><td></td></tr>
<tr><td>33</td><td>Write a Program in Python that defines and calls the following user defined functions:
(i) add() – To accept and add data of a furniture to a CSV file ‘furdata.csv’.
Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively.
(ii) search()- To display the records of the furniture whose price is more than 10000.</td><td>4</td></tr>
<tr><td>34</td><td>Vivek is managing a Travel Database and needs to access certain information from the flights and Bookings tables. Help him extract the required information by writing the appropriate SQL queries as per the tasks mentioned below:
Table: Flights
<table><tr><td>flightid</td><td>model</td><td>Company</td></tr><tr><td>10</td><td>747</td><td>Boeing</td></tr><tr><td>12</td><td>320</td><td>Airbus</td></tr><tr><td>15</td><td>767</td><td>Boeing</td></tr></table></td><td>4</td></tr>
</table>

Table: Bookings

ticketno	passenger	source	destination	quantity	price	flightid
10001	ARUN	BAN	DEL	2	7000	10
10002	ORAM	BAN	KOL	3	7500	12
10003	SUMITA	DEL	MUM	1	6000	15
10004	ALI	MUM	KOL	2	5600	12
10005	GAGAN	MUM	DEL	4	5000	10

I. To display a list of passengers who are traveling to Delhi

II. To display the booking details of passengers who are traveling in flight of Boeing company

III. To delete all bookings of flight from 'Mumbai'

IV. A. To display the Cartesian Product of the two tables.

OR

B. View the structure of table Booking

35 — 4

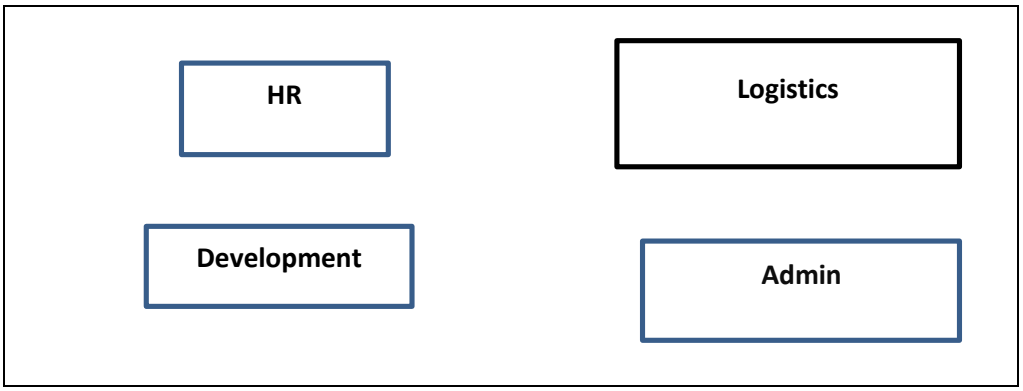
MySQL database named SchoolDB has a Student table in MySQL which contains the following attributes:•
RollNo – integer;
Name – string;
Class – integer;
Marks – integer
Consider the following details to establish Python-MySQL connectivity:•
Username: admin_user•
Password: schoo2024•
Host: localhost
Write a python program to accepts the roll number of a student and increases the marks of that student by 5 in the table Student.

Q.No.	**SECTION E (2 X 5 = 10 Marks)**	**Marks**

36 — **2+3**

Reshabh is a programmer, who has recently been given a task to write a python code to perform the following binary file operations with the help of two user defined functions:
a. AddStudents() to create a binary file called STUDENT.DAT containing student information as list – roll number, name and marks (out of 100) of each student.
b. GetStudents() to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message.

37	Magnolia Infotech wants to set up their computer network in the 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 are required to suggest the best answers to the questions i) to v) keeping in mind the building layout on the campus.	**5**



Number of Computers.

Block	**No of Computer**
HR	**30**
Logistics	**15**
Development	**20**
Admin	**40**

Distance between each block

Block	**Distance**
Development to HR	50m
Development to Admin	75m
Development to Logistics	120m
HR to Admin	110m
HR to Logistics	50m
Admin to Logistics	140m

i) Suggest the most appropriate block to host the Server. Also justify your choice.

ii) Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services.

iii) Suggest the wired medium and draw the cable block to block layout to economically connect the various blocks.

iv) Suggest the placement of Switches and Repeaters in the network with justification.

v) A. What is the use of VoIP?

OR

B. Which type of network (PAN, LAN, MAN, or WAN) will be formed while connecting the different block in the Bangalore campus.

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