Series P/PB2/1

SET 1

CLASS XII PRE-BOARD EXAMINATION – 2024-25

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 :

(i) *This question paper contains **37** questions.*

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

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

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

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

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

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

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

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

(x) *In case of MCQ, text of the correct answer should also be written.*

	SECTION-A	
1.	State True or False. "A String can be surrounded by three sets of single quotation marks or by three sets of double quotation marks."	1
2.	Identify the output of the following code snippet: *nstr1 = 'Mission 1928'* *nstr2 ='8057'* *print(nstr2.isdigit(), nstr1.isdigit())*	1
	a) True, False b) True, True	
	c) False, True d) False, False	
3.	What will be the output of the following expression?	1
	bool('11') and 10<11	
	a) True b) False	
	c) 11 d) Error	
4.	The expression will be evaluated to: **142//5+26%4-2**4+5**	1
	a) 19 b) 19.0	
	c) 19.4 d) 20.0	
5.	Select the correct output of the code: *st = 'Welcome to the World of Technology.'* *st = st.split('o')* *stx = st[0] + '. ' + st[1] + '.' + st[3]* *print (stx)*	1
	a) Welc. me t.rld b) Welcome. me to .rld	
	c) Welc. me the. World d) Welcome. to. the World	
6.	Which of the following will delete key-value pair for key = "Red" from a dictionary D1?	1
	a) delete D1("Red") b) del D1["Red"]	
	c) del.D1["Red"] d) D1.del["Red"]	
7.	Which of the following mode in the file opening statement results or generates an error if the file does not exist?	1
	a) a+ b) w+	
	c) r+ d) None of the above	
8.	_____command is used to add primary key constraint into the relation in MySQL.	1
	a) ALTER b) DROP	
	c) UPDATE d) INSERT	

9.	Which of the following statement(s) would give an error after executing the following code? *msg='Programming is fun.'* *# Statement 1* *print(msg)* *# Statement 2* *msg="Learn Coding"* *# Statement 3* *msg[3]= '@'* *# Statement 4* *msg=msg+"Python"* *# Statement 5*		1
	a) Statement 3	b) Statement 4 & 5	
	c) Statement 4	d) Statement 5	
10.	Given the following dictionary Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"} Which statement will return "Tuesday".		1
	a) Day.pop()	b) Day.pop(2)	
	c) Day.pop(1)	d) Day.pop('Tuesday')	
11.	Fill in the blank : _____is not a valid built-in function for list manipulations.		1
	a) count()	b) length()	
	c) append()	d) extend()	
12.	The SQL Modulus Operator returns,		1
	a) Quotient	b) Percentage	
	c) Sum	d) Remainder	
13.	Which of the following functions is a valid built-in function for both list and dictionary datatype?		1
	a) items()	b) len()	
	c) update()	d) values()	
14.	Fill in the blank: _____is a non-key attribute, whose values are derived from the primary key of some other table.		1
	a) Primary Key	b) Candidate Key	
	c) Foreign Key	d) Alternate Key	
15.	fetchone() method fetches only one row in a ResultSet and returns a_____.		1
	a) Tuple	b) List	
	c) Dictionary	d) String	
16.	In a table in MYSQL database, an attribute A of datatype varchar(20) has the value "Keshav". The attribute B of datatype char(20) has the value "Meenakshi". How many characters are occupied by attribute A and attribute B?		1
	a) 20,6	b) 6,20	
	c) 9,6	d) 6,9	
17.	In which of the following a dedicated line between the sender and receiver is established before the transmission starts?		1
	a) Packet Switching	b) Message Switching	
	c) Virtual Switching	d) Circuit Switching	

18.	Select the correct combination of protocols used to send and receive emails.		1
	a) SMTP,POP	b) SMTP, FTP	
	c) POP, FTP	d) SMTP, HTTP	
19.	Which of the following represents the correct IP Address?		1
	a) 192.168.2.2	b) 192.168.232.524	
	c) 192.268.2.2	d) 192.168.25.22.22	
	Q. 20 and 21 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.**		
20.	Assertion (A) : In Python, a stack can be implemented using a list. Reasoning (R) : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).		1
21.	Assertion (A) : SQL SELECT's GROUP BY clause is used to divide the result in groups. Reasoning (R) : The GROUP BY clause combines all those records that have identical values in aparticular field or in group by fields.		1
	SECTION-B		
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.	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 L1. (ii) To check whether a string named, message ends with a full stop/period or not. OR A list named studentAge stores age of students of a class. Write the Python command to import the required module and (using built-in function) display the most common age value from the given list.		2

24.	Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable b.
	`import random`
	`a="Wisdom"`
	`b=random.randint(1,6)`
	`for i in range(0,b,2):`
	`  print(a[i],end='#')`
			2

	a) W#s	b) W#s#	
	c) W#i#	d) W#i#s#	

25.	**Predict the output of the following code snippet:** *s='welcome'* *L=[10,21,33,44]* *d={}* *for i in range(len(s)):* *if i%2==0:* *d[L.pop()]=s[i]* *else:* *d[L.pop()]=i+2* *for k,v in d.items():* *print(k,v,sep="*")*	2
26.	**Define the following operators with examples.** (i) Membership operator (ii) Identity operator	2
27.	A) List one advantage and one disadvantage of Bus Topology. OR B) Expand the term HTTP. How it is different from HTTPS?	2
28.	A) Differentiate between IN and BETWEEN operators in SQL with appropriate examples. OR B) Explain the usage of HAVING clause in GROUP BY command in RDBMS with the help ofan example.	2 2
	SECTION- C	
29.	Write a function in Python to read a text file, Alpha.txt and display those lines which begin with the word 'You'.	3
	OR Write a function, vowelCount() in Python that counts and displays the number of vowels in the text file named Poem.txt.	
30.	A) A list contains following records of course details for a University: [Course_name, Fees, Duration] Write the following user-defined functions to perform given operations on the stack named 'Univ' : (i) Push_element():- To push the objects containing the Course_name, Fees, and Duration of a course, which has fees greater than 100000 to the stack. (ii) pop_element() To pop the objects from the stack and display it. Also, display "Underflow" when there is no element in the stack. For Example: If the lists of courses details are: ["MCA", 200000, 3] ["MBA", 500000, 2] ["BA", 100000, 3]	3

The stack should contain:

["MBA", 500000, 2]

["MCA", 200000, 3]

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`.

(i) 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".

(ii) Write function Disp_even() to display all element of the stack without deleting them. If the stack is empty, the function should display 'None'.

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: 3

```
d = {"apple": 15, "banana": 7, "cherry": 9}
str1 = ""
for key in d:
    str1 = str1 + str(d[key]) + "@" + "\n"
    str2 = str1[:-1]
        print(str2)
```

OR

Predict the output of the following code:

```
line=[4,9,12,6,20]
for I in line:
    for j in range(1,I%5):
        print(j,'#',end="")
    print()
```

SECTION-D

32. Consider the table ORDERS as given below. 4

O_Id	C_Name	ProductName	Quantity	Price
1001	Aditya	Laptop	4	48000
1002	Vishal	Smartphone	2	20000
1003	Soniya	Headphone	3	4500
1004	Vishal	Laptop	2	24000
1005	Soniya	Smartphone	6	60000
1006	Amit	Headphone	NULL	NULL

A) Write the following queries:

(i) To display the ProductName and total Quantity for each Product, excluding Products with total Quantity less than 5.

(ii) To display the ORDERS table sorted by price in descending order.

(iii) To display the distinct customer names from the Orders table.

(iv) To Display the sum of Price of all the orders for which the quantity not given.

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 productname 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 'Players.csv' contains the data of the Players. Each record of the file contains the following data. 4

- Player's Id
- Name of the Player
- Name of the sport
- Country of the Player

For example, a sample record of the file may be:

[25, 'Sunil Chhetri', 'Football', 'India']

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 records of all the players, whose country is 'India'.

(ii) Count the number of records in the file.

34. Write SQL commands for the queries (i) to (iv) based on a table COMPANY and CUSTOMER. 4

Table: COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	CHENNAI	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
C01	RAHUL SHARMA	70000	20	222
C02	DEEPAK KUMAR	50000	10	666
C03	MOHAN KUMAR	30000	5	111
C04	SUCHAYE DEV	35000	3	333

(i) To display those company names which have price less than 35000.

(ii) To display the names of the companies in reverse alphabetical order.

(iii) To increase the prize by 1000 for those customers whose name starts with 'S'

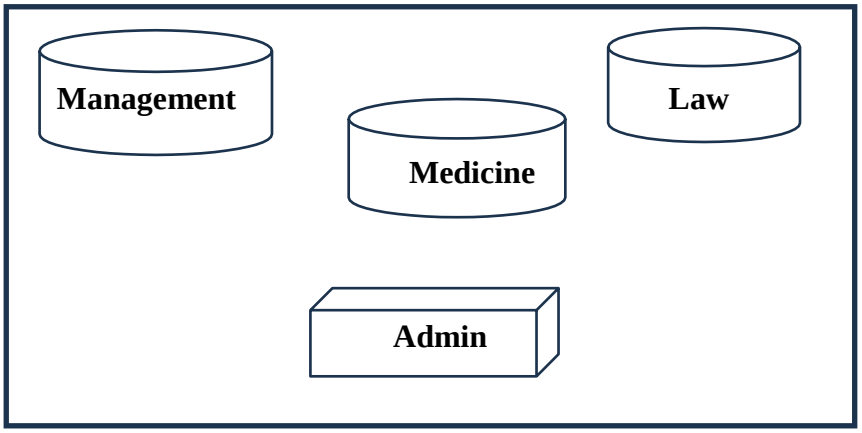
(iv) (A) To add one more column totalprice with data type decimal(10,2) to the table customer.

OR

(B) To display the Cartesian Product of these two tables.

35.	Consider the Table 'ATTENDANCE' structure in the SCHOOLDB database below. **Field Name** | **Data Type** rollNo | int(11) studentName | varchar(30) className | Varchar(3) attendDate | Date Attendance | varchar(1) Assume the following for Python-MySQL connectivity. **Host: localhost User: root Password: tiger** Write the Python function to perform the specified operations given below: a) RecordAttendance(): To accept details of the student and store them in the Table ATTENDANCE. b) DisplayAttendance(): to accept the Attendance date and display all the records from Table ATTENDANCE as per the attendance date entered.	4
36.	Suchaye is a programmer, who has been assigned a task to keep records of the employee salary. For this, he wants the following information of each employee to be stored. • Emp_code – Integer • Emp_Name – string • Salary – float • Deductions – float Suchaye needs to write the following functions: (i) Write a function emp_data( ) to accept Employee Code, Name, Salary, and Deductions and append to binary file **'emp_data.dat'**.	5
	(ii) Write a function cal_salary() to calculate net salary based on entered salary and deductions. If the amount of the deduction entered is less than or equal to 0, it should display a message Deductions are less than 0 Cannot SAVE', Otherwise, the Salary should be calculated as **Net Salary=Salary-deductions**. (iii) Write a function to read the data from the binary file and display the data of all those employees, who have deductions of more than 5000.	

37.	ISoftKraft Technologies, a training institute is planning to set up its centre in Agra with **four** specialized blocks for Medicine, Management and Law courses along with an administrative block in a separate building. The physical distance between these blocks and the number of computers to be installed in these blocks are given below you as a network expert have to answer the queries raised by their board of directors as given (i) to (v):	**5**



Admin Block to Management Block	60
Admin Block to Medicine Block	40
Admin Block to Law Block	60
Management Block to Medicine Block	50
Management Block to Law Block	110
Law Block to Medicine Block	40

Admin Block	150
Management Block	70
Medicine Block	20
Law Block	50

(i) Suggest the most suitable location of the server inside the AGRA Centre to get efficient connectivity. Justify your choice.

(ii) Suggest the hardware devices to be installed in each of these buildings for connecting computers installed within the building out of the following:

a. Modem
b. Switch
c. Gateway
d. Router

(iii) Suggest drawing the best cable layout for effective network connectivity of the blocks within the AGRA Centre with all the other blocks.

	(iv) Suggest the most suitable wired medium for efficiently connecting each computer installed in every building out of the following network cables a. Coaxial Cable b. Ethernet Cable c. Single Pair Telephone Cable (v) A) Is there a requirement for a repeater in the given cable layout? Why/ Why not? OR B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the AGRA Centre?	

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