केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग **SET A**

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कक्षा बारहवीं प्री बोर्ड II परीक्षा 2025

PRE BOARD II EXAMINATION for Class XII 2025

SUBJECT : COMPUTER SCIENCE (083)

TIME: 3 HOURS **MAX. MARKS: 70**

सामान्य निर्देश/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.

SECTION A

1 State True or False 1

In Python, a dictionary is an ordered collection of items(key:value pairs).

2 What will be the output of the following code? 1

```
L = ["My", "Computer", "Lab"]
print(L[1][0] + L[2][-1])
```

a) Cb b) cb c) cB d) ab

3 What will be the output of following expression? 1

(5<10) and (10< 5) or (3<18) and not 8<18

a) True b) False c) Error d) No output

4 In SQL, which type of Join(s) may contain duplicate column(s)? 1

5 What will be output of the following code snippet? 1

```
Msg='Wings of Fire!'
print (Msg[-9: :2])
```

6 Which of the following options will not result in an error when performed on types in python where tp = (5,2,7,0,3) ? 1

a) Tp[1] = 2 b) tp.append(2)

c) tp1 = tp+tp d) tp.sum( )

7 The following expression will evaluate to 1

```
print(2+(5%5)**2**1/5+2)
```

a) 4.0 b) 4.6 c) 5.4 d) 5.0

8 Consider the given SQL Query: 1

```
SELECT job_title, AVG(salary) FROM employees HAVING AVG(salary) > 50000
GROUP BY job_title;
```

Aarav executes the above query but does not get the correct output. Write the correction.

9 What will be the output of the following Python code? 1

```
try:
    x = int("abc")
except ValueError:
    print("Value Error occurred!")
except Exception:
    print("Some other error!")
```

a) Value Error occurred! b) Some other error!
c) abc d) Nothing is printed

10 What will be the output of the following Python code? 1

```
student = {"name": "Rohan", "grade": "A", "subject": "Maths"}
print(student.get("age", "Data Not Available"))
```

a) Rohan b) A c) None d) Data Not Available

11 What possible output is expected to be displayed on the screen at the time of execution of the following Python program? 1

```
import random
nums = [5, 15, 25, 35, 45]
start = random.randint(1, 2)
end = random.randint(2, 3)
for i in range(start, end + 1):
    print(nums[i], end="#")
```

a) 5#15#25# b) 15#35# c) 15#25#35#45# d) 25#

12 What will be the output of the following code: 1

```
sal = 5000
def inc_sal(per):
    global sal
    inc = sal * (per / 100)
    sal += inc
inc_sal(10)
print(sal,end='%')
sal=6000
print(sal,end='$')
```

a) 5000%6000$ b) 5500.0%6000$
c) 5000.0$6000% d) 5500%5500$

13 Which SQL command can change the degree of an existing relation? 1

a) Insert b) Delete c) Both a) & b) d) Drop

14 What is the output of the expression? 1

```
St1="wonder@land@city"
print(St1.split("@"))
```

a) (“wonder”, “@”, “land”, “@”, “city”)
b) [“wonder”, “@”, “land”,”@’,”city”]
c) [“wonder”, “land”, “city”]
d) Error

15 In SQL, a table initially contains 4 columns and 8 rows. If 3 more columns and 2 more rows are added to the existing table, what will be the updated cardinality of the table? 1

a) 6 b) 7 c) 10 d) 11

16 Which statement is used to modify data in a table? 1

a) CHANGE b) MODIFY c) UPDATE d) ALTER

17 The protocol used identify the corresponding url from ip address is _____ 1

a)IP b)HTTP c)TCP d)FTP

18 The device used to connect different networks is .. 1

a)Bridge b)Router c)Modem d)Switch

19 Which of the following is used to create the structure of a web page? 1

a) HTML b) CSS c) JavaScript d) FTP

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): The expression "hello".upper() in Python will modify the original string. 1

Reason (R): The upper() method converts all characters of a string to uppercase and updates the same string object.

21 Assertion (A) : Both WHERE and HAVING clauses are used to specify conditions. 1

Reason(R) : The WHERE and HAVING clauses are interchangeable.

SECTION B

22 A. Differentiate list and tuple with respect to mutability. Give suitable example to illustrate the same. 2

OR

B. Explain the difference between break and continue statements in Python with a suitable example.

23 Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. 2

```
p=30
for c in range(0,p)
    if c%4==0:
        print (c*4)
    elseif c%5==0:
        print (c+3)
    else
        Print(c+10)
```

24 A. (Answer using Python built-in methods/functions only): 2

I. Write a statement to count the occurrences of 4 in L1.

II. Write a statement to sort the elements of list L1 in ascending order.

OR

B. Predict the output of the following Python code:

```
Str="Computer Science with Python"
print(Str.partition("with"))
print(Str.find("e",10,20))
```

25 A. Write a function update_price () in Python that accepts a dictionary items and two parameters — item_name and new_price. 2

If the item_name exists in the dictionary, update its price with new_price.

If it does not exist, print "Item not found".

OR

B. Write a Python function add_item() that accepts a list items and an element new_item. The function should add the element to the list only if it does not already exist. If the element already exists in the list, print "Item already exists" instead of adding it.

26 Predict the output of the Python code given below : 2

```
emp = {"East": [500,900],"West": [700,800],"North":
[700,800],"South":[800,700]}
value = [ ]
for n in emp:
    r1 = emp[n]
    x = (r1[0] + r1[1]) / 2
    if x > 700:
        value.append(n)
print(value)
```

27 A. Write suitable commands to do the following in MySQL. 2

I. Delete the values from table DATA.

II. Open a database named SQP

OR

B. Differentiate between alter and update query in SQL with a suitable example.

28 A. Define the following terms: 2

I. Repeater

II. Modem

OR

B.

I. How is it easier to diagnose fault in Star topology than in Bus topology ?

II.Mala is a bit confused between the terms Web server and Web browsers. Help her in understanding both the terms with the help of suitable example.

SECTION-C

29 A. Write a Python function that count the lines start with the word "the" in a file "xyz.txt" and display it at the end. 3

OR

B. Write a Python function that count total number of vowels in a file "abc.txt"

30 There is a stack named Uniform that contains records of uniforms Each record is represented as a list containing uid, uame, ucolour, usize, uprice. Write the following user-defined functions in python to perform the specified operations on the stack Uniform : 3

I Push_Uniform(new_uniform):adds the new uniform record onto the stack

II Pop_Uniform(): pops the topmost record from the stack and returns it. If the stack is already empty, the function should display "underflow".

III Peep(): This function diplay the topmost element of the stack without deleting it.if the stack is empty,the function should display 'None'.

31 A. Predict the output of the following Python code: 3

```
s1="LTC-26"
s2=""
i=0
while i<len(s1):
    if s1[i]>='0' and s1[i]<='9':
        Num=int(s1[i])
        Num-=1
        s2=s2+str(Num)
    elif s1[i]>='A' and s1[i]<='Z':
        s2=s2+s1[i+1]
    else:
        s2=s2+'^'
    i+=1
print(s2)
```

OR

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

```
T= ["20", "50", "30", "40"]
Total= 0
for I in [1,2,3,4]:
    newT=T[Counter]
    Total= float (newT) + I
    print(Total)
    Counter=Counter-1
```

SECTION-D

32 Consider the following table named Vehicle and state the query or state the output 4

Table:- Vehicle

VID	LicensePlate	VType	Owner	Cost	Contact	State
1	MH12AB1234	Car	Raj Kumar	65	9876543210	Maharastra
2	DL3CDE5678	Truck	Arjith Singh	125	8765432109	New Delhi
3	KA04FG9012	Motor cycle	Prem Sharma		9123456789	Karnataka
4	TN07GH3456	SUV	Shyad Usman	65	9987654321	Tamil Nadu
5	KA01AB1234	Car	Devid jhon	65	9876543210	Karnataka
6	TN02CD5678	Truck	Anjali Iyer	125	8765432109	Tamil Nadu
7	AP03EF9012	Motor cycle	Priya Reddy		9123456789	Andhra Pradesh

A. Write the following queries:
I. To display number of different vehicle type from the table vehicle
II. To display number of records entered vehicle type wise whose minimum cost is above 80
III. To set the cost as 45 for those vehicles whose cost is not mentioned
IV. To remove all motor cycle from vehicle

OR

B. Predict the output of the following:
(i) SELECT VTYPE,AVG(COST) FROM VEHICLE GROUP BY VTYPE;
(ii) SELECT OWNER ,VTYPE,CONTACT FROM VEHICLE WHERE OWNER LIKE “P%”;
(iii)SELECT COUNT(*) FROM VEHICLE WHERE COST IS NULL;
(iv) SELECT MAX(COST) FROM VEHICLE;

33 Abhishek is making a software on “Countries & their Capitals” in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists of some records. As a programmer, you have to help him to successfully execute the program. 4

A. Write a function in Python named AddNewRec(Country,Capital) to append following records in the file “CAPITAL.CSV”.
[“FRANCE”,”PARIS”]
[“SRILANKA”,”COLOMBO”]

B. Write a function in Python named ShowRec( ) that will show all the contents of CAPITAL.CSV

34 Salman has been entrusted with the management of Airlines Database.He needs to access some information from Airports and Flights tables for a survey. Help him extract the following information by writing the desired SQL queries as mentioned below. 4

Table - Airports

A_ID	A_Name	City	IATACode
1	Indira Gandhi Intl	Delhi	DEL
2	Chhatrapati Shivaji Intl	Mumbai	BOM
3	Rajiv Gandhi Intl	Hyderabad	HYD
4	Kempegowda Intl	Bengaluru	BLR
5	Chennai Intl	Chennai	MAA
6	Netaji Subhas Chandra Bose Intl	Kolkata	CCU

Table - Flights

F_ID	A_ID	F_No	Departure	Arrival
1	1	6E 1234	DEL	BOM
2	2	AI 5678	BOM	DEL
3	3	SG 9101	BLR	MAA
4	4	UK 1122	DEL	CCU
5	1	AI 101	DEL	BOM
6	2	6E 204	BOM	HYD
7	1	AI 303	HYD	DEL
8	3	SG 404	BLR	MAA

I To display airport name, city, flight id, flight number corresponding flights whose departure is from delhi

II Display the flight details of those flights whose arrival is BOM, MAA or CCU

III To delete all flights whose flight number starts with 6E.

IV A) To display Cartesian Product of two tables

OR

B) To display airport name,city and corresponding flight number

35 MySQL database named MyDB has a product_inventory table in MySQL which contains the following attributes: 4

- Item_code: Item code (Integer)
- Product_name: Name of product (String)
- Quantity: Quantity of product (Integer)
- Cost: Cost of product (Integer)

Consider the following details to establish Python-MySQL connectivity:
- Username: admin
- Password: computer24
- Host: localhost

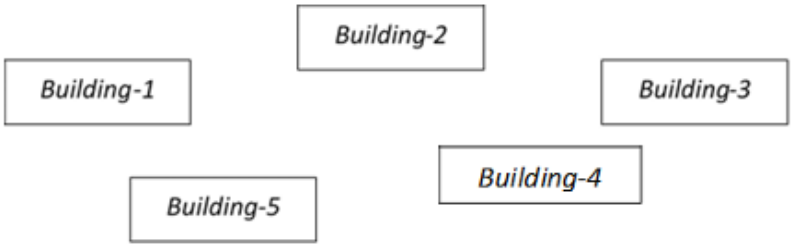
Write a Python program to change the Quantity of the product to 91 whose Item_code is 208 in the product_inventory table.

SECTION-E

36 Ms. Neha, a librarian at a public library, needs to maintain records of books. Each record should include: Book_ID, Title, Author, and Price. 2+3

Write the Python functions to:
I. Input book data and append it to a binary file named Books.dat.
II. Update the price of all books written by "Ruskin Bond" to ₹500.

37 PVS Computers decided to open a new office at Ernakulum, the office consist of Five Buildings and each contains number of computers. The details are shown below. 5



Distance between the buildings

Building 1 and 2	20 Meters
Building 2 and 3	50 Meters
Building 3 and 4	120 Meters
Building 3 and 5	70 Meters
Building 1 and 5	65 Meters
Building 2 and 5	50 Meters

Number of Computers in

Block	Number of Computers
HR	60
Finance	40
IT	90
Logistics	35

The Company has now decided to connect network in buildings.
I. Suggest the most suitable place (i.e. building) to house the server of this organization.
Also give a reason to justify your suggested location.
II. Where would you place Hub/Switch? Answer with justification.
III. Suggest a cable layout of connection between the buildings (Topology).
IV. Do you think anywhere Repeaters required in the campus? Why
V. Suggest a protocol that shall be needed to provide Video Conferencing solution between Ernakulum Campus and Ranchi Campus.

OR

What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the Ernakulum campus?