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SAMPLE PAPER - 5 (2023-24)
XII - COMPUTER SC(083)

TIME : 3 HRS **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.

SECTION-A		
Q. No.	**Question**	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

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5	In MYSQL database, if a table, **Emp** has degree 10 and cardinality 5, and another table, **Dept** has degree 5 and cardinality 10, what will be the degree and cardinality of the Cartesian product of **Emp** and **Dept** ? a. 50,15 b. 15,50 c. 50,50 d. 15,15	1
6	Ankur wants to transfer songs from his mobile phone to his laptop. He 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	Give the output:
	`dic1={'r':'red','g':'green','b':'blue'}`
	`for i in dic1:`
	`print (i, end =' ')`
	a. r g b b. R G B
	c. R B G d. red green blue
		1

8	Consider the statements given below and then choose the correct output from the given options:
	`MN="Bharat @G20"`
	`print(MN[-2:2:-2])`
	Options:
	a. rt@2 b. 2@tr
	c. @G20 d. 02G@
		1

9	Which of the following statement(s) would give an error after executing the following code?
	S="Welcome to KVS RO JAIPUR " # 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

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10	What possible outputs(s) will be obtained when the following code is executed?
	`import random`
	`Signal=['Stop','Wait','Go']`
	`for K in range (2,0,-1):`
	`  R=random.randrange(K)`
	`  print(Signal[R], end='#')`
	options:
	a. Stop#Go#
	b. Wait#Stop#
	c. Go#Stop#
	d. Go#Wait#
		1

11	Fill in the blank: …….is a communication methodology designed to deliver emails over Internet protocol. a. VIOP b. SMTP c. PPP d. HTTP	1

12	Consider the code given below and find correct output:
	`x=5`
	`def function1():`
	`  global x`
	`  y=x+x*2`
	`  print(y,end=",")`
	`x=7`
	`function1()`
	`print(x)`
	Output:
	a. 21 , 7
	b. 15 , 5
	c. 21 , 5
	d. 15, 7
		1

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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

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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.
	
	`def table():`
	`  n=int(("Enter number which table U need: ")`
	`  for i in (1,11):`
	`  print("Table of Enter no=",i*i)`
	`Table()`
		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

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22	Predict the output of the following code:
	`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)`
		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:
	`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=' ')`
		2

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SECTION C

26 Predict the output of the Python code given below: **3**

```
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)
```

27 Write the outputs of the SQL queries (a) to (c) based on the relation **Furniture** **1*3 = 3**

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

(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;

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. **3**

OR

Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt

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29	Consider the table Emp given below: **Table : EMP** **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 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 employess who have salary greater than 40000.	1*3=3
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

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SECTION D

31 Consider the doctor and patient table and write the output of (i) to (iv) — 1*4= 4

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';

32 A csv file " result.csv" contains record of student in following order — 4

[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.

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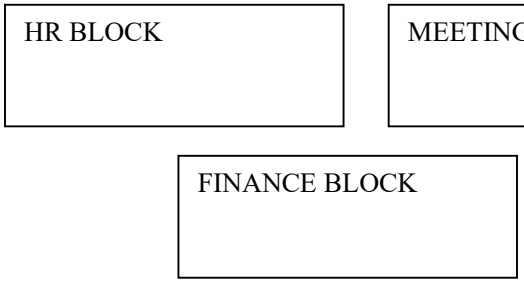
SECTION E

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. 1*5= 5

Physical locations of the blocks of M/s Computer Solutions



Block to block distance (in m)

Block (From)	Block (To)	Distance
HR Block	MEETING	110
HR Block	Finance	40
MEETING	Finance	80

Expected number of computers

Block	Computers
HR	25
Finance	120
MEETING	90

(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 Bengalore 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?

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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

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