**SAMPLE PAPER 2023-24**

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**General Instruction:**

1. Please check this question paper contains 35 questions
2. This question paper contains five sections, Section A to E.
3. Section A, consists of 18 questions (Q1 to Q18) carrying 01 mark each.
4. Section B, consists of 07 questions (Q19 TO Q25) carrying 02 marks each
5. Section C, consists of 05 questions (Q26 TO Q30) carrying 03 marks each.
6. Section D, consists of 03 questions (Q31 TO Q33) carrying 05 marks each.
7. Section E, consists of 02 questions (Q34 TO Q35) carrying 04 marks each

All programming questions are to be answered using Python Language only

## SECTION A – 18 MARKS

Q1. Consider The following: 1

t=(12,13,14,16,[2,3])

What changes will be made in t after the execution of the following statement?

t.append(4)

(i) t=(12,13,14,16,[2,3],4) (ii) t= (12,13,14,16,[2,3,4])

(iii) t=(4,12,13,14,16,12,3) (iv) t=It will give an error

Q2. Find the invalid identifier from the following: 1

i. between ii. in

iii. like iv. among

Q3. What will be the output of the following Python Code? 1

```
D={1:'One',2:'Two',3:'Three'}
L=[]
for K,V in D.items():
    if V[0]=="T":
        L.append(K)
print(L)
```

(i) [1,2,3]

(ii) ['One','Two','Three']

(iii) [2,3]

(iv) ['Two','Three']

Q4. Consider the given expression: 1

Not True and False or True

Which of the following will be the correct output of the given expression is evaluated?

(i) True (ii) False

(iii) None (iv) Null

Q5. What shall be the output of the following statement? 1

"TEST".split('T',1)

(i) [ ' ', ' ES ' ,' ' ] (ii) [ 'T', ' ES ' ,'T']

(iii) [ ' ', ' EST '] (iv) Error

Q6. Which of the following options is the correct Python statement to read and display the first 10 characters of a text file "poem.txt" ? 1

i. F=open('poem.txt')
print(F.load(10))

ii. F=open('poem.txt')
print(F.reader(10))

iii. F=open('poem.txt')
print(F.read(10))

iv. F=open('poem.txt',)
print(F.readline(10))

Q7. Fill in the blanks: 1

----------command is used to remove attribute from the table in SQL

(i) Update (ii) Remove

(iii) Alter (iv) Drop

Q8. Which of the following commands will delete the table from MySQL database? 1

i. Delete Table ii. Drop Table

iii. Remove Table iv. Alter Table

Q9. What shall be the output for the execution of the following statement? 1
"ANTARTICA".strip('A')

i. NTRCTIC ii. [' ', 'NT', 'RCTIC', ' ']

iii. NTARCTIC iv. Error

Q10. Which of the following constraints will supports the entry of duplicate values in a column? 1

i. Unique ii. Distinct

iii. Primary Key iv. Not Null

Q11. Which of the following statements contains the correct statement to open a csv file named POPs.csv to write the content into the file such that if a file with that name already exists, then the previous content should get overwritten by the new. 1

i. F=open('POPs.csv','wb') ii. F=open('POPs.csv','w')

iii. F=open('POPs.csv','a') iv. F=open('POPs.csv')

Q12. The Select statement when combined with ---------- clause, returns records without repetition. 1

i. DESCRIBE ii. UNIQUE

iii. DISTINCT iv. NULL

Q13. Which of the following establishes PAN? 1

i. Bluetooth ii. WWW

iii. Telephone iv. Modem

Q14. What should be the output of the following statements? 1

S=" Let there be light ".split('t')
print(S)

(i) [' et'. ' ', 'here','be ligh'] (ii) [' Le',' ','here be ligh ',' ']

(iii) ['e', 'here','be ligh'] (iv) Error

Q15. Which function is used to display the total no of records from a table in a database? 1

i. total() ii. total(*)
iii. count(*) iv. count()

Q16. To establish a connection between Python and SQL database, connect() function is used . Which of the following arguments may not necessarily be given while calling connect()? 1

i. host ii. database
iii. user iv. password

**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. **Assertion**. Data conversion is necessary during reading and writing 1
**Rewriting.**. Binary files store data in a binary format, which can be directly read and written without the need the data conversion

Q18. **Assertion**: The combination of the try block, except block and finally block is essential for comprehensive exception handling in Python 1
**Reasoning**: The try block allows for the execution of the code that might raise exceptions, the except block handles specific exceptions and the finally block ensures that certain code is always executed, whether an exception occurs or not.

## SECTION B – 14 MARKS

Q19. Rewrite the following code in Python after removing all syntax error (s) . Underline each correction done in the code 2

```
Value=90
for VAL in range(0,Value):
    If val %4==0:
        print(VAL*4)
    else if val%5==0:
        print(VAL+3)
    else
        print(VAL+10)
```

Q20. Write two points of difference between Circuit Switching and Packet Switching 2

**OR**

Write two points of difference between XML and HTML

Q21. a. What shall be the output of the following Python statement? 2

```
mysubject=”Computer Science with Python “
print(mysubject[-27:-10:2])
```

b. Write the output of the following code given below:

```
>>>a=[10,20,30,40,50,60,70]
>>>a[3:5]=[100,1000]
>>>a[3:5]=[10000]
>>>print(a)
```

Q22. Explain the use of 'Foreign Key' in a Relational Management System , Give an example to support your answer. 2

Q23. i. Write the full forms of following: (i) POP (ii) HTTPS 2
ii. What is the use of SMTP?

Q24. Predict an output of the following: 2

```
def Disp(A=4, B='2' , C=2):
    If type(C)==int:
        print(A*C*B, end='#')
    else:
        print(A*B+C)
Disp()
Disp(3,'*','10')
```

(i) 22222222 #**10**10**10
(ii) 22222222 #******10
(iii) 22222222 #**10**10
(iv) Error

**OR**

What shall be the output of the following:

```
S="MARSHMELLOW".partition('H')
print(S[::2])
```

Q25. Differentiate between DDl & DML in SQL with an appropriate example 2

## SECTION C – 15 MARKS

Q26. a. Consider the following tables Bank-Account and Branch 3

Table: Bank-Account

| **ACode** | **Name** | **Type** |
|---|---|---|
| A01 | Amrita | Savings |
| A02 | Parthodas | Current |
| A03 | Miraben | Current |

Table:Branch

| **ACode** | **City** |
|---|---|
| A01 | Delhi |
| A02 | Mumbai |
| A03 | Nagpur |

What will be the output of the following statement?

SELECT * FROM Bank-Account NATURAL JOIN Branch

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

| **CID** | **CNAME** | **FEES** | **STARTDATE** | **TID** |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| C201 | Animation & Mix | 12000 | 2022-07-02 | 101 |
| C202 | CADD | 15000 | 2021-11-15 | NULL |
| C203 | DCA | 10000 | 2020-10-01 | 102 |
| C204 | DDTP | 9000 | 2021-09-15 | 104 |
| C205 | Mobile Application Development | 18000 | 2022-11-01 | 101 |
| C206 | Digital Marketing | 16000 | 2022-07-25 | 103 |

(i) SELECT DISTINCT TID FROM TECH_COURSE

(ii) SELECT TID, COUNT(*), MIN(FEES) FROM TECH_COURSE GROUP BY TID HAVIN GCOUNT(TID)>1

(iii) SELECT CNAME FROM TECH_COURSE WHERE FEES>15000 ORDER BY CNAME

(iv) SELECT AVG(FEE) FROM TECH_COURSE WHERE FEES BETWEEN 15000 AND 17000

Q27. Write a function AMCount() in Python which should read each character of a text file "STORY.txt" and should count and display the occurrence of alphabets A and M (including small case a and m too) 3

**OR**

Write a function in Python that counts the no of "Me" or "My" words present in a text file "STORY.txt".

Q28. Write the SQL queries on the following tables: 3

Table: PRODUCT

| **P_Id** | **Prod_Name** | **Manufacturer** | **Price** | **Discount** |
|---|---|---|---|---|
| TP01 | Talcum Powder | LAK | 40 | NULL |
| FW05 | Face Wash | ABC | 45 | 5 |
| BS01 | Bath Soap | ABC | 55 | NULL |
| SH06 | Shampoo | XYZ | 120 | 10 |
| FW12 | Face Wash | XYZ | 95 | NULL |

Table: CLIENT

| **C_Id** | **C_Name** | **City** | **P_Id** |
|---|---|---|---|
| 01 | Cosmetic Shop | Delhi | TP01 |
| 02 | Total Health | Mumbai | FW05 |
| 03 | Live Life | Delhi | BS01 |
| 04 | Pretty Woman | Delhi | SH06 |
| 05 | Dreams | Delhi | FW12 |

(i) Write SQL query to display product name and price of all products whose price is in the range 50 to 150

(ii) Write SQL query to display the details of products whose manufacturer is either XYZ or ABC

(iii) Write Sql query to display Product Name , Manufacturer and Price of all products that are not giving any discount

Q29. Write a function INDEX_LIST(L) where L is the list of elements passed as an argument to the function . The function returns another list named 'indexlist' that stores the indices of all non-zero elements of L. For example: 3

If L contains [12,4,0,11,0,56]
The index list will have =[0,1,3,5]

Q30. A list contains the following record of customer: 3

**[Customer_name,Phone_no,City]**

Write the following user-defined function to perform given operations on the stack named status:

(i) Push_element(): To Push an object containing customer name and phone no of customer who live in **Goa** to the stack.

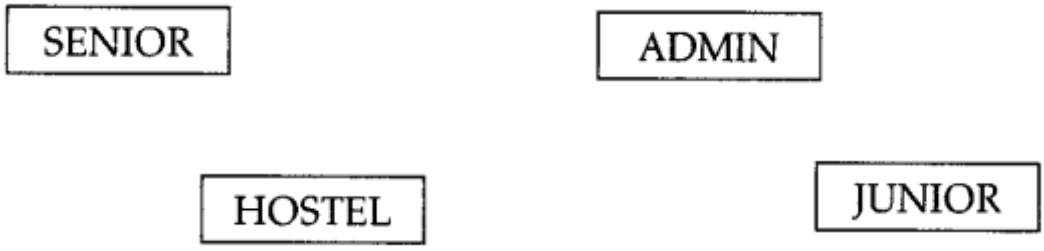
(ii) Pop_element(): To pop an object from the stack and display them , Also dsplay "Stack Empty" when there is no elements in the stack

**OR**

Write a function in Python Push(SItem) where SItem is a dictionary containing the details of stationary items (Sname, price)
The function should push the names of those items in the stack which have price more than 75. Also display the count of element pushed into the stack.

## SECTION D – 15 MARKS

Q31. In Ahmedabad one college is starting up the network between its different wings. There are four buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below: 5




The distance between various buildings is as follows:

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

Number of Computers in Each Building :

| | |
|---|---|
| SENIOR | 130 |
| JUNIOR | 80 |
| ADMIN | 160 |
| HOSTEL | 50 |

a. Suggest the cable layout of connections between the buildings.
b. Suggest the most suitable place (i.e., building) to house the server of this school, provide a suitable reason.
c. Suggest the placement of the following devices with justification.
   - Repeater
   - Hub/Switch

d. 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 school and inquiry office out of the following :
   - Microwave
   - Radiowave

5 Draw the cable layout to efficiently connect buildings within Ahmedabad campus for connecting computers.

Q32. (a) Predict an output of the code given below: 5

```
S="pythons2ip"
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]>='n' and s[i]<='z'):
        m=m+s[i-1]
    elif (s[i].isupper()):
        m=m+s[i].lower()
    else:
        m=m+'&'
print(m)
```

[2+3]

(b) The code given below reads the following record from the table named STUDENT and display only those records that have marks greater than 75.
Roll No – Integer
Name – String
Class – Integer
Marks – Integer

Note the following to establish connectivity between Python and MySQL
- UserName is root
- Password is root
- The Table exists in a mySQL database named SCHOOL

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 students whose marks are greater than 75
Statement 3: To read the complete results of the query (records whose marks are greater than 75) into the object data from the table student in the database.

```
import mysql.connector as myc
def sql_Data():

    cool=mysql.connect(host='localhost',user='root','passwd='root',
    database='school'
    mycur=--------------------------------          #Statement 1
    print('Student marks more than 75')
```

```
----------------------------------        #Statement 2
data=-------------------------------      #Statement 3
for I in data:
    print(i)
    print()
```

Q33. i. What is the advantages of using a binary files for permanent storage? 5 [1+4]

ii. Write a program in Python that defines and calls the following user-defined functions

a. 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 studid , name and marks to store student ids, student name and student marks respectively

b. total(): to count the no of records present in the CSV file named student.csv

**OR**

i. Give any one point of difference between a binary files and CSV file.

ii. Write a program in Python in Python that defines and calls the following functions:

a. add() – To accept and add data of an employee to a CSV file furdata.csv. Each record consists of a list with field elements as fid, fname, fprice to store furniture id, furniture name and furniture price respectively

b. search() – To display the records of the furniture whose price is more than 10000

## SECTION E – 8 MARKS

Q34. Raghav has been assigned task to create a database named 'Project_Info' He also has to cerate the following two tables in the database: 4

Table:Projects

| **Field** | **Data Type** | **Constraints** |
|---|---|---|
| PID | Char(5) | Primary Key |
| PName | Varchar(20) | |
| StartDate | Date | |
| EndDate | Date | |

Table: Employee

| **Field** | **Data Type** | **Remarks** |
|---|---|---|
| Eid | Char(4) | Primary Key |
| Name | Varchar(20) | |
| DOB | Date | Can not be Null |
| DOJ | Date | Can not be Null |
| Salary | Integer | |
| Project | Char(5) | Foreign Key references PID of Project Table |

Based on the data given above answer the following questions:

a. Which table should he create first – Projects or Employee, Justify your answer.

b. If two columns are added and two rows are deleted from the table Projects, what will be the degree and cardinality of the Projects Table.

c. Write the statements to:

   i. Add a column Gender of type char(1) to the table MEployee , assuming table is already created

   ii. Create table Project

Q35. Ram is a Python programmer. He has created computer science project in Python and saved the file with the name 'Record.dat' consisting of the fields -employeeids, ename, and salary. The file contains 10 records . He now has to update a record based on the employee ids entered by user and update the salary. The updated record is then to be written in the file **temp.dat**. The records which are not to be updated also have to be written to the file temp.dat . If the employee id is not found and appropriate message should be displayed. 4

As a Python expert help him complete the following code based on the requirement given below:

(i) Which module should be imported into the program

(ii) To open the file temp.dat

(iii) To read the data from the binary file Record.dat

(iv) To write the updated data in the file , temp.dat

```
import----------------------------                    #Statement 1
def update_data():
    rec=[]
    fin=open('Record.dat')
    fout=open("----------------------------------")    #Statement 2
    found=False
    eid=int(input("Enter employee ids to update their salary"))
    while True:
        try:
            rec=----------------------------          #Statement 3
            if rec["Employee id"] ==eid:
                    Found=True
                    Rec["Salary"] = int(input("Enter new salary::"))
                    pickle.-------------------------  #Statement 4
            else:
               pickle..dump(rec,fout)
            except
            break
    if found==False:
        print("N employee id found")
    else:
        print("Salary has been updated")
```

```
fin.close()
fout.close()
```

**************************************ALL THE BEST*******************************