



**COMMON PRE-BOARD EXAMINATION**  
**COMPUTER SCIENCE - Code No. 083**  
**Class-XII-(2025-26)**



**SET: 1**

**Time allowed: 3 Hrs.**

**Maximum Marks: 70**

**MARKING SCHEME**

General Instructions:

1. In Python, string content is accepted within a pair of single quotes ' ' or within a pair of double quotes " ".
2. In MySQL, CHAR/VARCHAR/DATE type content is accepted within a pair of single quotes ' ' or within a pair of double quotes " ".
3. In MySQL commands, lowercase/UPPERCASE both are correct.
4. All answers/codes are suggestive, any other alternative correct answers to be accepted.

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Q.No.	Questions	Marks
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**Section-A (21 x 1 = 21 Marks)**

- |    |  |          |
|----|--|----------|
| 1. | State if the following statement is True or False:<br>Using the statistics module in Python, the output of the below statements will be 25:<br><pre>import statistics<br/>print(statistics.mode([15, 25, 15, 35, 25, 25, 45]))</pre> | <b>1</b> |
|----|--|----------|

**Answer:**

True

*(1 mark for correct answer)*

- |    |   |          |
|----|---|----------|
| 2. | What will be the output of the following Python code?<br><pre>text = "DataScience@20256#Exam"<br/>print(text.find("e"))</pre> | <b>1</b> |
|----|---|----------|

A) True    B) 7    C) 8    D) 10

**Answer:**

B) 7

*(1 mark for correct answer)*

3. Fill in the blank with the Boolean value (True/False) such that the following expression evaluates to False: 1

(True and \_\_\_\_\_) and (not False and True)

**Answer:**

False

*(1 mark for correct answer)*

4. In SQL, which clause filters the results after the GROUP BY clause has aggregated the data? 1

**Answer:**

Having clause

*(1 mark for correct answer)*

5. What will be the output of the following Python code? 1

```
s = "Machine@Learning@AI"
s = s.split('@')
result = s[1] + "#" + s[0] + "#" + s[2]
print(result)
```

A) Learning#Machine#AI

B) Machine#Learning#AI

C) Learning@Machine@AI

D) AI#Learning#Machine

**Answer:**

A) Learning#Machine#AI

*(1 mark for correct answer)*

6. Write the output of the following Python code: 1

```
L = (10, 20, [30, 40], 50)
L[2][0] = 100
print(L)
```

**Answer:**

(10, 20, [100, 40], 50)

*(1 mark for correct answer)*

7. What will be the output of the following Python statement? 1

```
print(15 + 2**3**2 - 100/4)
```

**Answer:**

502.0

*(1 mark for correct answer)*

8. Consider the given SQL Query: 1  
SELECT department, AVG(salary) AS avg\_salary FROM employees ORDER BY  
avg\_salary DESC GROUP BY department;  
Nidhi is executing the above query, but facing an error. Identify and write the corrected SQL  
query.

**Answer:**

```
SELECT department, AVG(salary) AS avg_salary FROM employees  
GROUP BY department ORDER BY avg_salary DESC;  
(1 mark for correct answer)
```

9. What will be the output of the following Python code? 1
- ```
def demo():  
    try:  
        x = 10 / 0  
        return "Try"  
    except ZeroDivisionError:  
        return "Except"  
    finally:  
        return "Finally"  
print(demo())
```
- A) Try      B) Except      C) Finally      D) ZeroDivisionError

**Answer:**

C) Finally  
*(1 mark for correct answer)*

10. What will be the output of the following Python code? 1
- ```
stock = {"pen": 50, "book": 20}  
print(stock.popitem( ), end=' ')  
print(stock)
```
- A) ('pen', 50) {'book': 20}      B) ('book', 20) {'pen': 50}  
C) {'book': 20} ('pen', 50)      D) {'book': 20} {'pen', 50}

**Answer:**

B) ('book', 20) {'pen': 50}  
*(1 mark for correct answer)*

11. What possible output is not expected to be displayed on the screen at the time of execution of the Python program from the following code? 1
- ```
import random  
num = random.randint(1, 4)  
Technologies = ["IoT", "Blockchain", "AI", "Cloud", "VR"]  
for i in range(0, num):  
    print(Technologies[i], end='**')  
print()
```

- A) IoT\*\*  
C) IoT\*\*Blockchain\*\*AI\*\*
- B) IoT\*\*Blockchain\*\*AI\*\*Cloud\*\*VR\*\*  
D) IoT\*\*Blockchain\*\*AI\*\*Cloud\*\*

**Answer:**

B) IoT\*\*Blockchain\*\*AI\*\*Cloud\*\*VR\*\*  
(1 mark for correct answer)

12. What will be the output of the following Python code? 1

```
x = 3
y = 5
def compute(a):
    global y
    x = a + 2
    y = y + x
    print(x, y, end='@@')
compute(4)
print(x, y)
```

- A) 6 11@@3 11    B) 4 10@@3 10    C) 6 11@@6 11    D) 6 10@@3 10

**Answer:**

A) 6 11@@3 11  
(1 mark for correct answer)

13. Which aggregate function in SQL is used to find the total sum of values in a numeric column? 1

- A) TOTAL()    B) SUM()    C) ADD()    D) COUNT()

**Answer:**

B) SUM()  
(1 mark for correct answer)

14. Give the output of the given Python code? 1

```
note = "MACHInE LeaRNING maKES AI sMARTeR"
print(note.count("MA"))
```

- A) 4    B) 3    C) 2    D) 1

**Answer:**

C) 2  
(1 mark for correct answer)

15. Consider a table STUDENT with 8 records and 4 attributes, and another table SUBJECT with 1

6 records and 3 attributes. What would be the degree and cardinality of the resultant table after performing a NATURAL JOIN operation, assuming one common attribute with 5 matching records?

**Answer:**

Degree = 6, Cardinality = 5

*(1/2 mark for correct degree and 1/2 mark for correct cardinality answer)*

16. Which SQL query will display unique department names from the table TEACHER? 1
- A) SELECT ALL dept FROM TEACHER;
  - B) SELECT UNIQUE dept FROM TEACHER;
  - C) SELECT DISTINCT dept FROM TEACHER;
  - D) SELECT dept FROM TEACHER WHERE dept IS UNIQUE;

**Answer:**

C) SELECT DISTINCT dept FROM TEACHER;

*(1 mark for correct answer)*

17. Name the device that is used to connect two different networks? 1
- A) Hub    B) Switch    C) Router    D) Modem

**Answer:**

C) Router

*(1 mark for correct answer)*

18. The modem at the sender's computer end acts as a \_\_\_\_\_. 1
- A) Model    B) Modulator    C) Demodulator    D) Convertor

**Answer:**

B) Modulator

*(1 mark for correct answer)*

19. In \_\_\_\_\_ technique, data is divided into chunks called packets, which may travel through different paths and finally reach the destination. 1
- A) Circuit Switching    B) Packet Switching    D) Message Switching    D) Cell Switching

**Answer:**

B) Packet Switching

*(1 mark for correct answer)*

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): Python functions can accept positional, keyword and default parameters. 1  
Reason (R): Default parameters allow function arguments to be assigned a default value if no argument is provided during the function call.

**Answer:**

A) Both A and R are True and R is the correct explanation for A.  
*(1 mark for correct answer)*

21. Assertion (A): A foreign key ensures referential integrity between tables. 1  
Reason (R): A foreign key must always have unique values in the child table.

**Answer:**

C) A is True but R is False.  
*(1 mark for correct answer)*

### Section-B (7 x 2=14 Marks)

22. A) Differentiate between keyword and identifier with suitable example of each. 2  
**OR**  
B) Explain the difference between mutable and immutable data types in Python with suitable examples.

**Answer:**

A) Keyword: It is a special word that has a special meaning for the compiler / interpreter.  
Eg.- if, elif, else etc.

Identifier: They are the user defined name given to a part of a program like variable name, object name, function name etc. Eg. – a1, sumofnos

*(1 mark for correct difference)*  
*(1/2 mark for each correct example)*

**OR**

B) Mutable: Objects whose value can be changed after creation.

Example: Lists, Dictionaries, Sets

Immutable: Objects whose value cannot be changed after creation.

Example: Strings, Tuples, Numbers

*(1 mark for correct difference)*  
*(1/2 mark for each correct example)*

23. Krithesh has written a function to print Fibonacci series for first 10 elements. However, there are syntax and logical errors in the code. Rewrite it after removing all the errors. Also, underline all the corrections made. 2

```
def fibonacci()  
    first=0  
    second=1  
    print(('first no. is ', first))
```

```

print('secondno. is',second)
for a in range (1,9):
    third=first-second
    print(third)
    first, second = second, third
fibonacci()

```

**Answer:**

```

def fibonacci():
    first=0
    second=1
    print('first no. is ', first)
    print('secondno. is',second)
    for a in range (1,9):
        third=first+second
        print(third)
        first, second = second, third
fibonacci()

```

*(1/2 mark each for correcting 4 mistakes)*

24. A) Consider the following List, Subjects = ['Hindi', 'English', 'Math', 'Science', 'SST'] 2  
 (Answer using Python built-in methods/functions only):  
 I) Write a Python statement to remove the element "Math" from the List 'Subjects'.  
 II) Write a Python statement to sort the List 'Subjects' in alphabetical order.

**OR**

- B) Predict the Output for following Python code:

```

def Swap (a,b):
    if a>b:
        print('changed ',end=' ')
        return b,a
    else:
        print('unchanged ',end=' ')
        return a,b
data=[11,22,16,50,30]
for i in range (4,0,-2):
    print(Swap(data[i], data[i-1]))

```

**Answer:**

- A) I) Subjects.remove("Math")  
 II)Subjects.sort()  
*(1 mark for each correct answer)*

- B) unchanged (30, 50)  
 unchanged (16, 22)  
*(1 mark for each correct answer)*

25. A) Write a function SQUARE\_LIST(L), where L is the List of elements passed as argument to the function. The function returns another list named 'SList' that stores the Squares of all Non-Zero Elements of L. 2
- For example:  
If L contains [9,4,0,11,0,6,0]  
The SList will have [81,16,121,36]

**OR**

- B) Write a function AVERAGE\_PRICE() that creates a Dictionary of products and their prices and returns the average price of all the products.
- For example:  
If Dictionary products contains {"Pen": 10, "Notebook": 50, "Eraser": 5}  
Then output is, Average price: 21.67

**Answer:**

A)

```
def SQUARE_LIST(L):
```

```
    SList=[ ]
```

```
    for i in L:
```

```
        if i!= 0:
```

```
            SList.append(i*i)
```

```
    return SList
```

```
L=[9,4,0,11,0,6,0]
```

```
print(SQUARE_LIST(L))
```

*(1/2 mark for correct function header)*

*(1/2 mark for correct loop)*

*(1/2 mark for correct if statement)*

*(1/2 mark for return statement)*

**Note: Any other relevant and correct code may be marked**

**OR**

B)

```
def average_price(products):
```

```
    if not products:
```

```
        return 0
```

```
    total = sum(products.values())
```

```
    avg = total / len(products)
```

```
    return round(avg, 2)
```

```
products = {"Pen": 10, "Notebook": 50, "Eraser": 5}
```

```
print("Average price:",average_price(products))
```

*(1/2 mark for correct function header)*

*(1 mark for calculation of average)*

*(1/2 mark for return statement)*

**Note: Any other relevant and correct code may be marked**

26. Predict the output of the Python code given below: 2
- ```
data = [("A", 115), ("B", 120), ("A", 150)]  
category = { }
```

```

for item in data:
    if item[1] > 110:
        category[item[0]] = "High"+str(item[1])
    else:
        category[item[0]] = "Low"+str(item[1])
print(category)

```

**Answer:**

```
{'A': 'High150', 'B': 'High120'}
```

*(1 mark for each correct output item of Dictionary)*

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

- I) Display all databases available.
- II) Delete a table named TEMP.

**OR**

B) Differentiate between UPDATE and ALTER query in SQL with suitable examples.

**Answer:**

A)

I) SHOW DATABASES;

II) DROP TABLE TEMP;

*(1 mark for each correct answer)*

**OR**

B) UPDATE: Modifies data in existing rows.

UPDATE employees SET salary = 50000 WHERE emp\_id = 101;

ALTER: Modifies table structure (adds/removes/modifies columns).

ALTER TABLE employees ADD COLUMN email VARCHAR(50);

ALTER TABLE employees DROP COLUMN age;

*(1 mark for correct difference)*

*(1/2 mark for each correct example)*

28. A) Define the following terms: 2

- I) Bandwidth
- II) Firewall

**OR**

B)

I) Expand the following terms: POP3 and SMTP

II) Bring out the difference between Hyper Text Markup Language and Extensible Markup Language.

**Answer:**

A)

I) Bandwidth is the maximum amount of data that can be transmitted over a network connection in a given time period.

*(1 mark for correct answer)*

II) A firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

*(1 mark for correct answer)*

**OR**

B)

I) POP3: Post Office Protocol version 3

Simple Mail Transfer Protocol

*(1/2 mark for each correct expansion)*

II) HTML's primary purpose is to display content, given in a text-based document, in a graphical form in the browser. In contrast, XML allows different applications to exchange and store data and its structure in a way that is universally understood.

*(1 mark for correct point of difference)*

**Section-C (3 x 3 = 9 Marks)**

29. A) Write a Python function COUNT\_WORDS() that reads a text file "STORY.TXT" and counts how many words start with a vowel (both uppercase and lowercase). Display the count. **3**

For example:

If the file "STORY.TXT" contains:

Once upon a time, in a land far away, there lived an old man.

Everyone loved him because he was kind and generous.

The output should be:

Words starting with vowels: 10

**OR**

- B) Write a function COPY\_LINES() in Python that reads a text file "INPUT.TXT" and copies only those lines that contain the word "Python" (case-insensitive) to another file "OUTPUT.TXT".

For example:

If "INPUT.TXT" contains:

Python is a popular programming language.

Java is also widely used.

Learning Python is fun and easy.

C++ is a powerful language.

Then "OUTPUT.TXT" should contain:

Python is a popular programming language.

Learning Python is fun and easy.

**Answer:**

A)

```
def COUNT_WORDS():
```

```
    try:
```

```
        f = open("STORY.TXT", "r")
```

```
        content = f.read()
```

```

words = content.split()
count = 0
for word in words:
    if word[0].lower() in 'aeiou':
        count += 1
print("Words starting with vowels:", count)
f.close()
except:
    print("File not found")

```

*(1/2 mark for correct function header)*  
*(1/2 mark for correctly opening the file)*  
*(1/2 mark for correctly reading from the file)*  
*(1/2 mark for splitting the text into words)*  
*(1/2 mark for correct use of checking and calculating the counter variable)*  
*(1/2 mark for displaying the result)*

**OR**

B)

```

def COPY_LINES():
    fin = open("INPUT.TXT", "r")
    fout = open("OUTPUT.TXT", "w")
    for line in fin:
        if "python" in line.lower():
            fout.write(line)
    fin.close()
    fout.close()
    print("Lines containing 'Python' copied successfully.")

```

*(1/2 mark for correct function header)*  
*(1/2 mark for correctly opening the input file)*  
*(1/2 mark for correctly opening the output file)*  
*(1/2 mark for the correct check condition)*  
*(1/2 mark for correct writing to the new file)*  
*(1/2 mark for closing the files)*

30. A List containing records of Books as: **3**  
L = [("Mathematics", 450), ("Science", 380), ("English", 320), ("History", 290)]

Write the following User-Defined Functions to perform operations on a Stack named Book to:

- I) Push\_book() – To push an item containing the book name and price of books costing more than 300 into the Stack.  
Output: [('Mathematics', 450), ('Science', 380), ('English', 320)]
- II) Pop\_book() – To pop the items from the Stack and display them. Also, display "Stack Empty" when there are no elements in the Stack.  
Output:  
('English', 320)

```
('Science', 380)
('Mathematics', 450)
Stack Empty
```

**Answer:**

I)

```
L = [("Mathematics", 450), ("Science", 380), ("English", 320), ("History", 290)]
book = []
def Push_book(L):
    for i in L:
        if i[1] > 300:
            book.append(i)
    print(book)
```

II)

```
def Pop_book(book):
    while book:
        print(book.pop())
    else:
        print("Stack Empty")
```

*(1½ marks for each correct part)*

31. A) Predict the output of the following Python code: **3**
- ```
d = {"monitor": 5, "keyboard": 10, "mouse": 15}
result = []
for key, value in d.items():
    result.append(key.title() + " has " + str(value) + " units\n")
output = "#".join(result)
print(output)
```

**OR**

- B) Predict the output of the following Python code:
- ```
x = 25
def modify(s, c=2):
    global x
    for a in s:
        if a in 'QWEiop':
            x //= 5
            print(a.upper(), '@', c*x)
        else:
            x += 5
            print(a.lower(), '#', c+x)
string = 'We'
modify(string, 10)
print(x, '$', string)
```

**Answer:**

- A) Monitor has 5 units  
#Keyboard has 10 units  
#Mouse has 15 units  
*(1 mark for each correct line)*

**OR**

- B) W @ 50  
e # 20  
10 \$ We  
*(1 mark for each correct line)*

**Section-D (4 x 4 = 16 Marks)**

32. Consider the table EVENTS as given below:

4

E_Id	E_name	Manager	Price	Capacity
1001	Birthday	Prateek	3000	30
1002	Anniversary	Manoj	15000	50
1003	Reception	Shivansh	25000	NULL
1004	Birthday	Prem	3500	35

A) Write the following SQL queries:

- I) To display the total Price for each event, excluding events with total Price less than 5000.
- II) To display the EVENTS table sorted by Capacity in descending order.
- III) To display the distinct event names from the EVENTS table.
- IV) Display the sum of Price of all the events for which the capacity is not known.

**OR**

B) Predict the output of the following:

- I) SELECT E\_name, SUM(Price) FROM EVENTS GROUP BY E\_name;
- II) SELECT Manager FROM EVENTS WHERE manager LIKE '%a%';
- III) SELECT E\_Id, Price FROM EVENTS WHERE Price BETWEEN 1500 AND 12000;
- IV) SELECT MAX(Price) FROM EVENTS;

**Answer:**

A)

- I) SELECT SUM(PRICE) FROM EVENTS GROUP BY E\_NAME HAVING SUM(PRICE) >= 5000;
- II) SELECT \* FROM EVENTS ORDER BY CAPACITY DESC;
- III) SELECT DISTINCT(E\_NAME) FROM EVENTS;
- IV) SELECT SUM(PRICE) FROM EVENTS WHERE CAPACITY IS NULL

*(4 x 1 mark for each correct query)*

**OR**

(B)

I)

E_name	sum(price)
Birthday	6500
Anniversary	15000
Reception	25000

II)

Manager
Prateek
Manoj
Shivansh

III)

e_id	Price
1001	3000
1004	3500

IV)

max(price)
25000

*(4 x 1 mark for each correct query)*

33. Ms. Riya is an event coordinator for a Multinational Company who maintains data about participants in a CSV file named Participants.csv, which stores details of each participant. 4

The columns of the CSV file are: Participant\_ID, Name, Event and Score

Help her efficiently manage the data by writing User-Defined Functions in Python to:

- I) AddParticipant() – to accept participant details from the user and add them to the file.  
II) DisplayHighScorers() – to display the names and events of participants who scored above 80.

**Answer:**

I)

```
import csv
def AddParticipant():
    f = open('Participants.csv', 'a', newline='')
    w = csv.writer(f)
    pid = input("Enter Participant ID: ")
    name = input("Enter Name: ")
    event = input("Enter Event: ")
```

```

score = int(input("Enter Score: "))
w.writerow([pid, name, event, score])
f.close()
print("Record added successfully.")

```

- (1/2 mark for correctly taking user input)*  
*(1/2 mark for opening the file in append mode)*  
*(1/2 mark for correctly creating the writer object)*  
*(1/2 mark for correctly using writerow() of writer object)*

```

II)
import csv
def DisplayHighScorers():
    f = open('Participants.csv', 'r')
    r = csv.reader(f)
    print("High Scorers (Score > 80):")
    for rec in r:
        if rec and rec[3].isdigit() and int(rec[3]) > 80:
            print(rec[1], "-", rec[2])
    f.close()

```

- (1/2 mark for opening in the file in right mode)*  
*(1/2 mark for correctly creating the reader object)*  
*(1/2 mark for correctly checking the condition)*  
*(1/2 mark for correctly displaying the names and events)*

**Note (for both parts (I) and (II)):** Ignore import csv as it may be considered the part of the complete program.

34. Mr. Jace is maintaining a Training Database for a Skill Development Institute. Help him extract the required information by writing the appropriate SQL queries as per the tasks mentioned below:

4

#### TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

#### COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

- I) Display all the details of Trainers who are living in city CHENNAI.  
 II) Count and display the number of Trainers in each city.

- III) Display the Course details which have Fees more than 12000 and name ends with 'I'.  
IV) A) Display the Trainer Name & Course Name from both tables where Course Fees is less than 10000.

**OR**

- B) Display the Cartesian Product of above two tables.

**Answer:**

- I) SELECT \* FROM TRAINER WHERE CITY = "CHENNAI";  
II) SELECT CITY, COUNT(\*) FROM TRAINER GROUP BY CITY;  
III) SELECT \* FROM COURSE WHERE FEES > 12000 AND CNAME LIKE "%I";  
IV) A) SELECT T.TNAME, C.CNAME FROM TRAINER T, COURSE T WHERE T.TID=C.TID AND C.FEES<10000;

**OR**

- B) SELECT \* FROM TRAINER, COURSE;

*(4 x 1 mark for each correct query)*

35. Mr. Virat has created a table named TRAVELS in MySQL:

**4**

The fields of the table are:

- Tour\_id – ID of the Tour (String)  
Destination – The destination (String)  
Geo\_Cond – Geographical condition (String)  
Distance – The distance (Integer, in Km)

Consider the following details to establish Python-MySQL connectivity:

- UserName – root  
Password – bharat  
Host – localhost

The table TRAVELS exists in a MYSQL database named TOUR.

Virat wants to display all records of TRAVELS relation whose Geographical condition is 'Hilly area' and distance less than 1000 Km. Help Virat to write the program in Python.

**Answer:**

```
import mysql.connector as BD
def Emp_Database():
    con=BD.connect(host="localhost",user="root",password="bharat",database="TOUR")
    BDcursor=con.cursor()
    print("Travels at Hilly Area and the distance more than 1000 KM.:")
    BDcursor.execute("select * from TRAVELS WHERE Geo_Cond = 'Hilly area' AND
    Distance <1000")
    TravelRec=BDcursor.fetchall()
    for rec in TravelRec:
        print(rec)
    con.close()
```

- (1/2 mark for correctly importing the connector object)*  
*(1/2 mark for correctly creating the connection object)*  
*(1/2 mark for correctly creating the cursor object)*  
*(1 mark for correct creation of select query)*  
*(1 mark for correctly fetching the records and displaying the result)*  
*(1/2 mark for correctly closing the connection)*

**Section-E (2 X 5 = 10 Marks)**

36. Mr. Rajesh is working as a Store Manager at a Chess Equipment Shop in Mumbai. He needs to manage the records of various chess products at the shop. For this, he wants the following information of each chess set to be stored: **2+3**
- Chess\_ID – Integer
  - Type – String (e.g., 'Wooden', 'Magnetic', 'Travel', 'Tournament')
  - Chess\_Cost – Float
  - Stock – Integer

You, as a programmer of the shop, have been assigned to do this job for Rajesh on a Binary file named CHESS.DAT

- I) Write a function DISP\_CHESS() to read the data from the Binary file and display the Chess ID's of all 'Wooden' and 'Tournament' type chess sets.
- II) Write a function DEL\_CHESS() to delete the chess record(s) which is not presently in stock (the stock value is 0) from the Binary file.

**Answer:**

I)

```
import pickle
def DISP_CHESS():
    file1 = open("CHESS.DAT", "rb")
    flag = 0
    print("\nChess IDs of 'Wooden' and 'Tournament' Type Chess Sets:")
    try:
        while True:
            data = pickle.load(file1)
            if data[1] == "Wooden" or data[1] == "Tournament":
                print("Chess ID: ",data[0])
                flag = 1
    except EOFError:
        file1.close()
    if flag == 0:
        print("Sorry! No Wooden or Tournament type chess sets found")
DISP_CHESS():
```

OR Any other correct variation of the code

- (1/2 Mark for correctly opening file in read and loading the data correctly)*  
*(1/2 Mark for loading the file)*  
*(1/2 Mark for checking the condition)*  
*(1/2 Mark for printing the data correctly)*

II)

```
import pickle
import os
def DEL_CHESS():
    file1=open("CHESS.DAT","rb")
    file2=open("temp.dat","wb")
    flag=0
    try:
        while True:
            data=pickle.load(file1)
            if data[3]==0:
                flag=1
            else:
                pickle.dump(data,file2)
    except EOFError:
        file1.close()
        file2.close()
    os.remove("CHESS.DAT")
    os.rename("temp.dat","CHESS.DAT")
    if flag==0:
        print("Sorry! No Chess file was of zero stock")
    else:
        print("All Chess file information of 0 stock are deleted")
DEL_CHESS()
```

OR Any other correct variation of the code

*(1/2 mark for correctly defining the function header)*

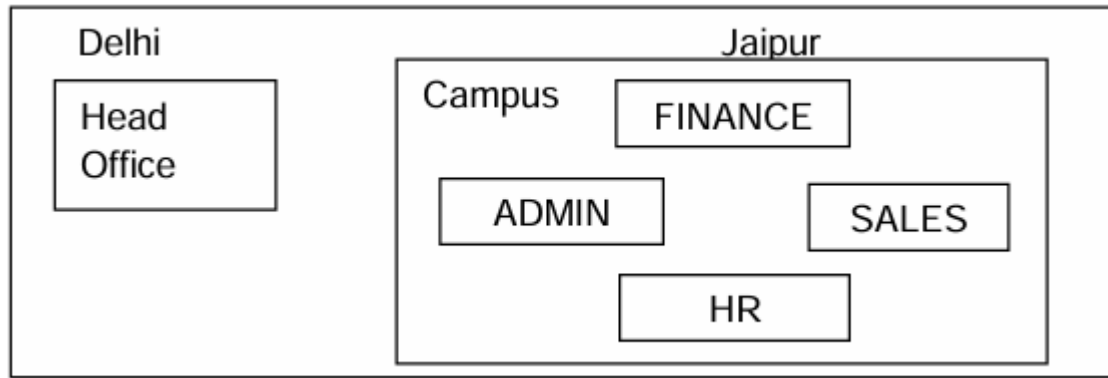
*(1/2 mark for correctly opening the files)*

*(1 mark for using load() with while loop and try-except block)*

*(1 mark for checking the condition and deleting the value)*

**Note (for both parts (I) and (II)): (i) Ignore import pickle as it may be considered the part of the complete program.**

37. UzooH Infotech is planning to set up its India campus in Jaipur with its head office in Delhi. The Jaipur campus will have four blocks/buildings – ADMIN, FINANCE, SALES and HR. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various block/buildings and other given parameters. **5**



**Block to Block distances (in meters):**

From	To	Distance
ADMIN	FINANCE	35 m
ADMIN	SALES	110 m
ADMIN	HR	50 m
FINANCE	SALES	65 m
FINANCE	HR	85 m
SALES	HR	70 m
Delhi Head Office	Jaipur Campus	310 Km

**Number of Computers in each Block:**

Block	Number of Computers
ADMIN	120
FINANCE	10
SALES	50
HR	30

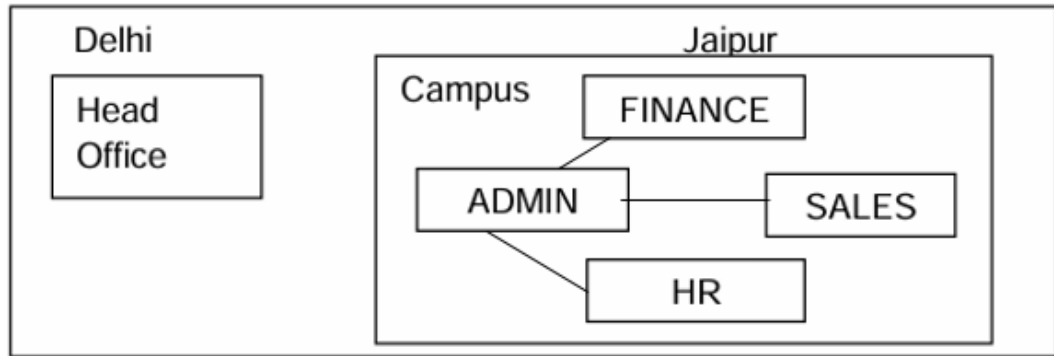
- I) Draw the cable layout to efficiently connect various blocks of buildings within the Jaipur campus.
- II) Suggest the most appropriate location of the server inside the Jaipur campus. Justify your choice.
- III) Suggest the placement of following devices: A) Switch/Hub B) Repeater
- IV) Which cost efficient wired medium should be used to connect the computers in Jaipur campus?
- V) A) Which type of network is formed by connecting Delhi Head Office with Jaipur Campus?

**OR**

- B) What would be your recommendation for enabling live visual communication between the Admin Office at the Jaipur Campus and Delhi Head Office from the following options:
  - (i) Video Conferencing
  - (ii) Email
  - (iii) Telephony
  - (iv) Instant Messaging

**Answer:**

- (I) Cable layout:



Star topology

- (II) ADMIN block due to maximum number of computers in any block because of which most of the traffic will be local.
- (III) A) Switch/Hub: In every block which has more than 1 device to interconnect them.  
 B) Repeater: Between ADMIN and SALES to regenerate the weak signal as distance is over 70m.
- (IV) Ethernet cable / Optical fiber
- (V) A) WAN
- OR**
- B) (i) Video conferencing

*(5 x 1 mark for each correct part of the answer)*