COMMON PRE-BOARD EXAMINATION

COMPUTER SCIENCE - Code No. 083

Class-XII-(2025-26)

SET: 2

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.

Q.No.	Questions	Marks

Section-A (21 x 1 = 21 Marks)

1. State if the following statement is True or False: **1**

Using the statistics module in Python, the output of the below statements will be 30:

```
import statistics
print(statistics.median([10, 20, 30, 40, 50]))
```

Answer:

True

(1 mark for correct answer)

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

```
message = "ArtificialIntelligence@2025"
print(message.find("i"))
```

A) True B) 7 C) 3 D) 10

Answer:

C) 3

(1 mark for correct answer)

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

(False or _____) or (not True and False)

Answer:

True
(1 mark for correct answer)

4. In SQL, which clause is used to sort the result set in ascending or descending order? **1**
Answer:

Order by 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**

```
T = (5, 10, [15, 20], 25)
T[2][1] = 200
print(T)
```

Answer:

(5, 10, [15, 200], 25)
(1 mark for correct answer)

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

```
print(25 - 3**2**1 + 50/2)
```

Answer:

41.0
(1 mark for correct answer)

8. Consider the given SQL Query: **1**
SELECT course, AVG(fees) AS avg_fees FROM institution ORDER BY avg_fees DESC GROUP BY course;

Ananya is executing the above query, but facing an error. Identify and write the corrected SQL query.

Answer:

SELECT course, AVG(fees) AS avg_fees FROM institution
GROUP BY course ORDER BY avg_fees DESC;
(1 mark for correct answer)

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

```
def test():
    try:
        y = 20 / 2
        return "Try Block"
    except ZeroDivisionError:
        return "Except Block"
    finally:
        return "Finally Block"
print(test())
```

A) Try Block B) Except Block C) Finally Block D) ZeroDivisionError

Answer:

C) Finally Block
(1 mark for correct answer)

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

```
stock = {"laptop": 150, "mouse": 220}
print(stock.popitem( ), end='  ')
print(stock)
```

A) ('laptop ', 150) {'mouse ': 220} B) ('mouse ', 220) { 'laptop ': 150}
C) {'mouse ': 220} (' laptop ', 150) D) {'mouse ': 220} {'laptop ', 150}

Answer:

B) ('mouse', 220) {'laptop': 150}
(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 = ["Java", "Python", "Ruby", "C", "C++"]
for i in range(0, num):
    print(Technologies[i], end='**')
print()
```

A) Java** B) Java**Python**Ruby**C**C++**
C) Java**Python**Ruby** D) Java**Python**Ruby**C**

Answer:

B) Java**Python**Ruby**C**C++**
(1 mark for correct answer)

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

```
a = 7
b = 3
def calculate(x):
    global b
    a = x + 3
    b = b + a
    print(a, b, end='##')
calculate(5)
print(a, b)
```

A) 8 11##7 11 B) 5 8##7 8 C) 8 11##8 11 D) 8 10##7 10

Answer:

A) 8 11##7 11
(1 mark for correct answer)

13. Which SQL function is used to return the number of rows in a result set? **1**
A) TOTAL( ) B) SUM( ) C) ADD( ) D) COUNT( )

Answer:

D) COUNT( )
(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 EMPLOYEE with 8 records and 4 attributes, and another table DEPARTMENT with 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? **1**

Answer:

Degree = 6, Cardinality = 5
(1/2 mark for correct degree and ½ mark for correct cardinality answer)

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

Answer:

C) SELECT DISTINCT dept FROM DOCTOR;
(1 mark for correct answer)

17. Which network topology connects all devices to a central device? **1**
A) Bus B) Ring C) Star D) Mesh

Answer:

C) Star
(1 mark for correct answer)

18. The modem at the receiver's computer end acts as a _____. **1**
A) Model B) Modulator C) Demodulator D) Convertor

Answer:

C) Demodulator
(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 primary key uniquely identifies each record in a table. **1**

Reason (R): A primary key can contain NULL values.

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 Differentiate between syntax error and runtime error with suitable example of each. **2**

OR

B) Explain the difference between mutable and immutable data types in Python with suitable examples.

Answer:

A) Syntax Error: Occurs when code violates the rules of Python syntax, detected during parsing.
Example: print("Hello" (missing closing parenthesis)
Runtime Error: Occurs during program execution when a valid statement causes an error.
Example: x = 10/0 (division by zero)
(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. Mohan 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, Colors = ['Red', 'Blue', 'Green', 'Yellow', 'Orange'] **2**
(Answer using Python built-in methods/functions only):
I) Write a Python statement to insert the element "Purple" at index 2 in the List 'Colors'.
II) Write a Python statement to reverse the List 'Colors'.

OR

B) Predict the Output for following Python code:

```
def Process(x, y):
   if x < y:
      print('smaller', end=' ')
      return x, y
   else:
      print('larger', end=' ')
      return y, x
numbers = [5, 15, 8, 25, 12]
for i in range(0, 4, 2):
   print(Process(numbers[i], numbers[i+1]))
```

Answer:

A) I) Colors.insert(2, "Purple")
II)Colors.reverse()

(1 mark for each correct answer)

B) smaller (5, 15)
smaller (8, 25)

(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))
```

(½ mark for correct function header)
(½ mark for correct loop)
(½ mark for correct if statement)
(½ 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))
```

(½ mark for correct function header)
(1 mark for calculation of average)
(½ 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**

```
scores = [("Team A", 85), ("Team B", 92), ("Team A", 78)]
results = {}
for entry in scores:
    if entry[1] >= 80:
        results[entry[0]] = "Pass" + str(entry[1])
    else:
        results[entry[0]] = "Fail" + str(entry[1])
print(results)
```

Answer:

{'Team A': 'Fail78', 'Team B': 'Pass92'}

(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) Add a new column 'email' of VARCHAR(50) type to a table named CUSTOMERS.

OR

B) Differentiate between DELETE and DROP query in SQL with suitable examples.

Answer:

A)

I)SHOW DATABASES;

II) ALTER TABLE CUSTOMERS ADD COLUMN email VARCHAR(50);

(1 mark for each correct answer)

OR

B) DELETE: Removes specific rows from a table based on a condition. Table structure remains.

Example: DELETE FROM employees WHERE emp_id = 101;

DROP: Completely removes a table and its structure from the database.

Example: DROP TABLE employees;

(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 Gadgets as: **3**
L = [("SmartWatch", 5000), ("Earbuds", 2500), ("Charger", 800), ("PowerBank", 3500)]

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

I) Push_gadget() – To push an item containing gadget name and price of gadgets costing more than 2000 into the Stack.
Output: [('SmartWatch', 5000), ('Earbuds', 2500), ('PowerBank', 3500)]

II) Pop_gadget() – To pop the items from the Stack and display them. Also, display "Stack Empty" when there are no elements in the Stack.
Output:
('PowerBank', 3500)
('Earbuds', 2500)
('SmartWatch', 5000)
Stack Empty

Answer:

I)

```
L = [("SmartWatch", 5000), ("Earbuds", 2500), ("Charger", 800), ("PowerBank", 3500)]
product = []
```

```
def Push_ gadget(L):
    for i in L:
        if i[1] > 2000:
            product.append(i)
    print(product)
```

II)

```
def Pop_gadget(product):
    while product:
        print(product.pop())
    else:
        print("Stack Empty")
```

(1½ marks for each correct part)

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

```
inventory = {"chair": 12, "table": 8, "desk": 5}
output = []
for item, qty in inventory.items():
    output.append(item.upper() + " -> " + str(qty*2) + " items\n")
result = "*".join(output)
print(result)
```

OR

B) Predict the output of the following Python code:

```
num = 50
def calculate(text, multiplier=3):
    global num
    for char in text:
        if char in 'AEIOUaeiou':
            num //= 2
            print(char.upper(), '@', multiplier*num)
        else:
            num += 10
            print(char.lower(), '#', multiplier+num)
string = 'AI'
calculate(string, 5)
print(num, '$', string)
```

Answer:

A) CHAIR -> 24 items
*TABLE -> 16 items
*DESK -> 10 items

(1 mark for each correct line)

OR

B) A @ 125
I @ 60
12 $ AI

(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. Mr. Athrav is a sports coordinator for a college who maintains data about athletes in a CSV file named Athletes.csv, which stores details of each athlete. **4**

The columns of the CSV file are: Athlete_ID, Name, Sport and MedalCount

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

I) AddAthlete() – to accept athlete details from the user and add them to the file.

II) DisplayTopPerformers() – to display the names and sports of athletes who have won more than 3 medals.

Answer:

I)

```
import csv
def AddAthlete():
    f = open('Athletes.csv', 'a', newline='')
    w = csv.writer(f)
    aid = input("Enter Athlete ID: ")
    name = input("Enter Name: ")
    sport = input("Enter Sport: ")
    medalc = int(input("Enter Medals: "))
    w.writerow([aid, name, sport, medalc])
    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 DisplayTopPerformers():
    f = open('Athletes.csv', 'r')
    r = csv.reader(f)
    print("Top Performers (Medals > 3):")
    for rec in r:
        if rec and rec[3].isdigit() and int(rec[3]) > 3:
            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. Ms. Sneha has created a table named HOTELS in MySQL: **4**

The fields of the table are:

Hotel_id – ID of the Hotel (String)
Name – Name of the hotel (String)
Location – Location of hotel (String)
Rating – Rating of hotel (Float)

Consider the following details to establish Python-MySQL connectivity:

UserName – root
Password – india123
Host – localhost

The table HOTELS exists in a MySQL database named TOURISM.
Sneha wants to display all records of HOTELS relation where Location is 'Mumbai' and Rating is greater than 4.0. Help Sneha to write the program in Python.

Answer:

```
import mysql.connector as DB
def Hotel_Database():
   con = DB.connect(host="localhost", user="root",
         password="india123", database="TOURISM")
   cursor = con.cursor()
   print("Hotels in Mumbai with Rating > 4.0:")
   cursor.execute("SELECT * FROM HOTELS WHERE Location = 'Mumbai' AND
   Rating > 4.0")
   records = cursor.fetchall()
   for rec in records:
      print(rec)
   con.close()
Hotel_Database()
```

(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. Ms. Pooja is working as an Inventory Manager at a Sports Equipment Store. She needs to manage the records of various sports items at the shop. For this, she wants the following information of each sports item to be stored: **2+3**

- Item_ID – Integer
- Sport_Type – String (e.g., 'Cricket', 'Football', 'Tennis', 'Badminton')
- Item_Cost – Float
- Quantity – Integer

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

I) Write a function DISP_ITEMS() to read the data from the Binary file and display the Item IDs of all 'Cricket' and 'Football' type sports items.

II) Write a function UPDATE_QUANTITY() to update the quantity by adding 10 units to all items whose current quantity is less than 5 in the Binary file.

Answer:

I)

```
import pickle
def DISP_ITEMS():
    file1 = open("SPORTS.DAT", "rb")
    flag = 0
    print("\nItem IDs of 'Cricket' and 'Football' Type Items:")
    try:
        while True:
            data = pickle.load(file1)
            if data[1] == "Cricket" or data[1] == "Football":
                print("Item ID:", data[0])
                flag = 1
    except EOFError:
        file1.close()
    if flag == 0:
        print("Sorry! No Cricket or Football items found")
DISP_ITEMS()
```

OR Any other correct variation of the code

(½ Mark for correctly opening file in read and loading the data correctly)
(½ Mark for loading the file)
(½ Mark for checking the condition)
(½ Mark for printing the data correctly)

II)

```
import pickle
import os

def UPDATE_QUANTITY():
    file1 = open("SPORTS.DAT", "rb")
```

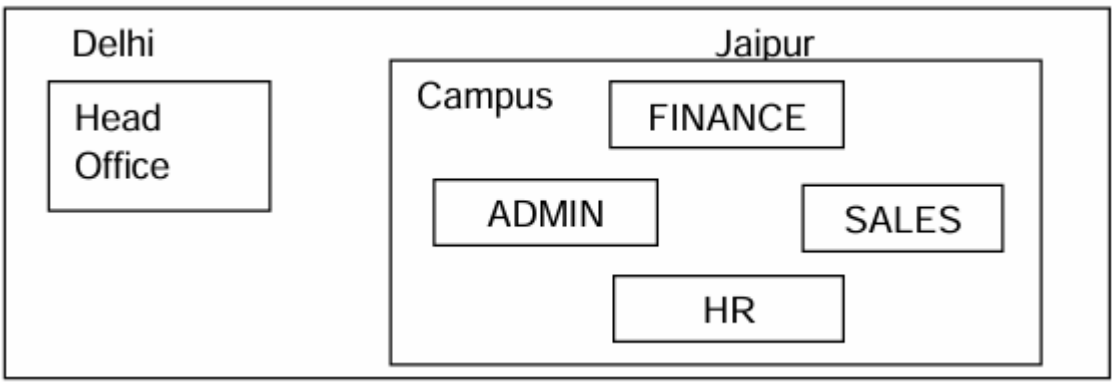
```
    file2 = open("temp.dat", "wb")
    flag = 0
    try:
        while True:
            data = pickle.load(file1)
            if data[3] < 5:
                data[3] = data[3] + 10
                flag = 1
            pickle.dump(data, file2)
    except EOFError:
        file1.close()
        file2.close()
    os.remove("SPORTS.DAT")
    os.rename("temp.dat", "SPORTS.DAT")
    if flag == 0:
        print("No items with quantity less than 5")
    else:
        print("Quantities updated successfully for low-stock items")
UPDATE_QUANTITY()
```

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 it 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 mention 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?

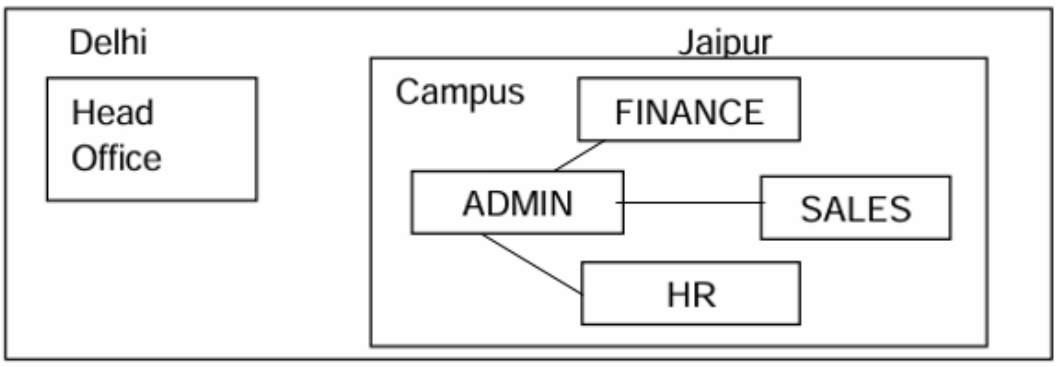
V) A) Which type of network is formed by connecting Delhi Head Office with Jaipur Campus?

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)