

CBSE

Solved Paper–2023

Computer Science

Class-12th

(Delhi & Outside Delhi Set)

Time : 3 Hours

Max. Marks : 70

General Instructions:

- (i) This question paper contains five sections, Section A to E.
- (ii) All questions are compulsory.
- (iii) Section A have 18 questions carrying 1 mark each.
- (iv) Section B has 7 Very Short Answer type questions carrying 2 marks each.
- (v) Section C has 5 Short Answer type questions carrying 3 marks each.
- (vi) Section D has 3 Long Answer type questions carrying 5 marks each.
- (vii) Section E has 2 questions carrying 4 marks each. One internal choice is given in Q.34 and 35, against Part (iii) only.
- (vi) All programming questions are to be answered using Python Language only.

SECTION - A

1. State True or False.

"Identifiers are names used to identify a variable, function in a program".

2. Which of the following is a valid keyword in Python?

- (a) false
- (b) return
- (c) non_local
- (d) none

3. Given the following Tuple

```
Tup= (10, 20, 30, 50)
```

Which of the following statements will result in an error?

- (a) print(Tup[0])
- (b) Tup.insert (2,3)
- (c) print(Tup[1:2])
- (d) print(len(Tup))

4. Consider the given expression:

```
5<10 and 12>7 or not 7>4
```

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

- (a) True
- (b) False
- (c) NONE
- (d) NULL

5. Select the correct output of the code:

```
S= "Amrit Mahotsav @ 75"
```

```
A=S.partition (" ")
```

```
print (A)
```

- (a) ('Amrit Mahotsav', '@', '75')
- (b) ['Amrit', 'Mahotsav', '@', '75']
- (c) ('Amrit', 'Mahotsav @ 75')
- (d) ('Amrit', '', 'Mahotsav @ 75')

6. Which of the following mode keeps the file offset position at the end of the file?
- (a) `r+` (b) `r`
(c) `w` (d) `a`
7. Fill in the blank.
..... function is used to arrange the elements of a list in ascending order.
- (a) `sort()` (b) `arrange()`
(c) `ascending()` (d) `asort()`
8. Which of the following operators will return either True or False?
- (a) `+=` (b) `!=`
(c) `=` (d) `*=`
9. Which of the following statement(s) would give an error after executing the following code?
- ```
stud={"Murugan":100, "Mithu":95} # Statement 1
print (stud[95]) # Statement 2
Stud ["Murugan"]=99 # Statement 3
print (Stud.pop()) # Statement 4
print (Stud) # Statement 5
```
- (a) Statement 2 (b) Statement 3  
(c) Statement 4 (d) Statement 2 and 4
10. Fill in the blank.  
..... is a number of tuples in a relation.
- (a) Attribute (b) Degree  
(c) Domain (d) Cardinality
11. The syntax of `seek()` is:  
`file_object.seek(offset[, reference_point])`  
What is the default value of `reference_point`?
- (a) 0 (b) 1  
(c) 2 (d) 3
12. Fill in the blank:  
..... clause is used with `SELECT` statement to display data in a sorted form with respect to a specified column.
- (a) `WHERE` (b) `ORDER BY`  
(c) `HAVING` (d) `DISTINCT`
13. Fill in blank:  
..... is used for point-to-point communication or unicast communication such as radar and satellite.
- (a) `INFRARED WAVES` (b) `BLUETOOTH`  
(c) `MICROWAVES` (d) `RADIOWAVES`
14. What will the following expression be evaluated to in Python?  
`print(4+3*5/3-5%2)`
- (a) 8.5 (b) 8.0  
(c) 10.2 (d) 10.0
15. Which function returns the sum of all elements of a list?
- (a) `count()` (b) `sum()`  
(c) `total()` (d) `add()`
16. `Fetchall()` method fetches all rows in a result set and returns a:
- (a) Tuple of lists (b) List of tuples  
(c) List of strings (d) Tuple of strings
- Q.17 and 18** are **ASSERTION (A)** and **REASONING (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.

17. **Assertion (A):** To use a function from a particular module, we need to import the module.  
**Reason (R):** import statement can be written anywhere in the program, before using a function from that module.
18. **Assertion (A):** A stack is a LIFO structure.  
**Reason (R):** Any new element pushed into the stack always gets positioned at the index after the last existing element in the stack.

### SECTION - B

[20 Marks]

19. Atharva is a Python programmer working on a program to find and return the maximum value from the list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made.

```
def max_num (L) :
 max=L(0)
 for a in L :
 if a > max
 max=a
 return max
```

20. (a) Differentiate between wired and wireless transmission.

OR

- (b) Differentiate between URL and domain name with the help of an appropriate example.

21. (a) Given is a Python list declaration:

```
Listofnames=["Aman", "Ankit", "Ashish", "Rajan", "Rajat"]
```

Write the output of:

```
print (Listofnames [-1:-4:-1])
```

- (b) Consider the following tuple declaration:

```
tup1=(10,20,30, (10,20,30),40)
```

Write the output of:

```
print(tup1.index(20))
```

22. Explain the concept of "Alternate Key" in a Relational Database Management System with an appropriate example.

23. (a) Write the full forms of the following:

(i) HTML

(ii) TCP

- (b) What is the need of Protocols?

24. (a) Write the output of the code given below:

```
def short_sub (lst,n) :
 for i in range (0,n) :
 if len (lst)>4:
 lst [i]=lst [i]+lst[i]
 else:
 lst[i]=lst[i]
subject=['CS', 'HINDI', 'PHYSICS', "CHEMISTRY", 'MATHS']
short_sub(subject, 5)
print(subject)
```

OR

- (b) Write the output of the code given below:

```
a =30
def call (x):
 global a
 if a%2==0:
 x+=a
 else:
 x-=a
 return x
x=20
print(call(35), end="##")
print(call (40), end= "@")
```

25. (a) Differentiate between CHAR and VARCHAR data types in SQL with appropriate example.  
OR  
(b) Name any two DDL and any two DML commands.

### SECTION - C

26. (a) Consider the following tables – LOAN and BORROWER:

Table: LOAN

| LOAN_NO | B_NAME | AMOUNT |
|---------|--------|--------|
| L-170   | DELHI  | 3000   |
| L-230   | KANPUR | 4000   |

Table: BORROWER

| CUST_NAME | LOAN_NO |
|-----------|---------|
| JOHN      | L-171   |
| KRISH     | L-230   |
| RAVYA     | L-170   |

How many rows and columns will be there in the natural join of these two tables?

OR

- (b) Write the output of the queries (i) to (iv) based on the table, WORKER given below:  
TABLE: WORKER

| W_ID | F_NAME  | L_NAME   | CITY       | STATE         |
|------|---------|----------|------------|---------------|
| 102  | SAHIL   | KHAN     | KANPUR     | UTTAR PRADESH |
| 104  | SAMEER  | PARIKH   | ROOP NAGAR | PUNJAB        |
| 105  | MARY    | JONES    | DELHI      | DELHI         |
| 106  | MAHIR   | SHARMA   | SONIPAT    | HARYANA       |
| 107  | ATHARVA | BHARDWAJ | DELHI      | DELHI         |
| 108  | VEDA    | SHARMA   | KANPUR     | UTTAR PRADESH |

- (i) `SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;`  
 (ii) `SELECT DISTINCT (CITY) FROM WORKER;`  
 (iii) `SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';`  
 (iv) `SELECT CITY, COUNT(*) FROM WORKER GROUP BY CITY;`

27. (a) Write the definition of a Python function named `LongLines()` which reads the contents of a text file named 'LINES.TXT' and displays those lines from the file which have at least 10 words in it.

For example, if the content of 'LINES.TXT' is as follows:

**Once upon a time, there was a woodcutter**

**He lived in a little house in a beautiful, green wood.**

**One day, he was merrily chopping some wood.**

**He saw a little girl skipping through the woods, whistling happily.**

**The girl was followed by a big gray wolf.**

Then the function should display output as:

**He lives in a little house in a beautiful, green wood.**

**He saw a little girl skipping through the woods, whistling happily.**

OR

- (b) Write a function `count_Dwords()` in Python to count the words ending with a digit in a text file "Details.txt".

Example:

If the file content is as follows:

On seat2 VIP1 will sit and  
 On seat1 VVIP2 will be sitting  
 Output will be:

Number of words ending with a digit are 4

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations COMPUTER and SALES given below:  
 Table: COMPUTER

| PROD_ID | PROD_NAME       | PRICE | COMPANY  | TYPE   |
|---------|-----------------|-------|----------|--------|
| P001    | MOUSE           | 200   | LOGITECH | INPUT  |
| P002    | LASER PRINTER   | 4000  | CANON    | OUTPUT |
| P003    | KEYBOARD        | 500   | LOGITECH | INPUT  |
| P004    | JOYSTICK        | 1000  | IBALL    | INPUT  |
| P005    | SPEAKER         | 1200  | CREATIVE | OUTPUT |
| P006    | DESKJET PRINTER | 4300  | CANON    | OUTPUT |

Table: SALES

| PROD_ID | QTY_SOLD | QUARTER |
|---------|----------|---------|
| P002    | 4        | 1       |
| P003    | 2        | 2       |
| P001    | 3        | 2       |
| P004    | 2        | 1       |

- (i) SELECT MIN(PRICE), MAX(PRICE) FROM COMPUTER;  
 (ii) SELECT COMPANY, COUNT(\*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT(COMPANY) > 1;  
 (iii) SELECT PROD\_NAME, QTY\_SOLD FROM COMPUTER C, SALES S WHERE C.PROD\_ID=S.PROD\_ID AND TYPE = 'INPUT';  
 (iv) SELECT PROD\_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD\_ID=S.PROD\_ID;

(b) Write the command to view all databases.

29. Write a functions EORreplace() in Python, which accepts a list L of numbers. Thereafter, it increments all even numbers by 1 and decrements all odd numbers by 1.

Example:

If Sample Input data of the list is:

L=(10, 20, 30, 40, 35, 55)

Output will be:

L=(11, 21, 31, 41, 34, 54)

30. (a) A list contains following record of customer.

[Customer\_name, Room Type]

Write the following user defined functions to perform given operations on the stack name 'Hotel':

- (i) Push\_Cust() - To Push customer' names of those customers who are staying in 'Delux' Room Type.  
 (ii) Pop\_Cust() - To Pop the names of customers from the stack and display them. Also, display "Underflow" when there are no customers in the stack.

For example:

IF the lists with customer details are as follows:

["Siddharth", "Delux"]

["Rahul", "Standard"]

["Jerry", "Delux"]

The stack should contain

Jerry

Siddharth

The output should be:

Jerry

Siddharth

Underflow

OR

- (b) Write a function in Python, Push (Vehicles) where, Vehicle is a dictionary containing details of vehicles – (Car\_Name: Maker).  
The function should push the name of car manufactured by "TATA" (including all the possible cases like Tata, TaTa, etc.) to the stack.

For example:

If the dictionary contains the following data:

```
Vehicle={"Santro":"Hyundai", "Nexon":"TATA", "Safari":"Tata"}
```

The stack should contain

Safari

Nexon

**SECTION - D**

31. Quickdev, and IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below:



Distance between various branches is as follows:

| Branch                 | Distance |
|------------------------|----------|
| Branch A to Branch B   | 40 m     |
| Branch A to Branch C   | 80 m     |
| Branch A to Branch D   | 65 m     |
| Branch B to Branch C   | 30 m     |
| Branch B to Branch D   | 35 m     |
| Branch C to Branch D   | 15 m     |
| Delhi Branch to Kanpur | 300 km   |

Number of computers in each of the branches:

| Branch   | Number of Computers |
|----------|---------------------|
| Branch A | 15                  |
| Branch B | 25                  |
| Branch C | 40                  |
| Branch D | 115                 |

- (i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.  
(ii) Suggest an ideal layout for connecting all these branches within Delhi.  
(iii) Which devices will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches?  
(iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed? Justify your answer.  
(v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch.
32. (a) What possible output(s) are expected to be displayed on screen at the time of execution of the following program:
- ```
import random
M=[5,10,15,20,25,30]
```

```

for i in range(1,3):
    first=random.randint(2,5)-1
    sec=random.randint(3,6)-2
    third=random.randint(1,4)
    print (M[first],M[sec],M[third],sep="#")

```

(i) 10#25#15

20#25#25

(ii) 5#25#20

25#20#15

(iii) 30#20#20

20#25#25

(iv) 10#15#25#

15#20#10#

- (b) The code given below deletes the record from the table employee which contains the following record structure:

E_code - String

E_name - String

Sal - Integer

City - String

Note the following to establish connectivity between Python and MySQL:

- Username is root
- Password is root
- The table exists in a MySQL database named emp
- The details (E_code, E_name, Sal, City) are the attributes of the table.

Write the following statements to complete the code:

Statement 1 – to import the desired library.

Statement 2 – to execute the command that deletes the record with E_code as 'E101'.

Statement 3 – to delete the record permanently from the database.

```

import _____ as mysql #Statement 1
def delete() :
    mydb=mysql.connect(host="localhost",user="root",
    passwd="root",database="emp")
    mycursor=mydb.cursor()
    _____ # Statement 2
    _____ # Statement 3
    print ("Record deleted")

```

OR

- (a) Predict the output of the code given below:

```

def makenew(mystr):
    newstr=" "
    count=0
    for i in mystr:
        if count%2!=0:
            newstr=newstr+str(count)
        else:
            if i.lower():
                newstr=newstr+i.upper()
            else:
                newstr=newstr+i
        count+=1
    print(newstr)
makenew("No@1")

```

- (b) The code given below reads the following records from the table employee and displays only those records who have employees coming from city 'Delhi':

E_code - String


```
E_name - String
Sal - Integer
City - String
```

Note the following to establish connectivity between Python and MySQL:

- Username is root
- Password is root
- The table exists in a MySQL database named emp.
- The details (E_code, E_name, Sal, (City)) are the attributes of the table.

Write the following statements to complete the code:

Statement 1 – to import the desired library.

Statement 2 – to execute the query that fetches records of the employees coming from city 'Delhi'.

Statement 3 – to read the complete data of the query (rows whose city is Delhi) into the object named details, from the table employee in the database.

```
import _____ as mysql          # Statement 1
def display() :
    mydb=mysql.connect(host="localhost",user="root",
    passwd="root",database="emp")
    mycursor=mydb.cursor()
    _____          # Statement 2
    details = _____      # Statement 3
    for i in details:
        print (i)
```

33. (a) Write one difference between CSV and text files.

Write a program in Python that defines and calls the following user defined functions:

- (i) **COURIER_ADD ()** : It takes the values from the user and adds the details to a csv file 'courier.csv'. Each record consists of a list with field elements as cid, s_name, Source, destination to store Courier ID, Sender name, Source and destination address respectively.
- (ii) **COURIER_SEARCH ()** : Takes the destination as the input and displays all the courier records going to that destination.

OR

- (b) Why is important to close a file before exiting?

Write a program in Python that defines and calls the following user defined functions:

- (i) **Add_Book()** : Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as book_ID, B_name and pub to store book ID, book name and publisher respectively.
- (ii) **Search_Book()** : Takes publisher name as input and counts and displays number of books published by them.

SECTION - E

34. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created a table and entered data of 5 labs.

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary Kom	37	II

Based on the data given above answer the following questions:

- (i) Identify the columns which can be considered as Candidate keys.
- (ii) Write the degree and cardinality of the table.
- (iii) Write the statements to:
- (a) Insert a new row with appropriate data.
- (b) Increase the capacity of all the labs by 10 students which are on 'I' Floor.

OR

(Option for part (iii) only)

(iii) Write the statements to:

- (a) Add a constraint PRIMARY KEY to the column LABNO in the table.
 (b) Delete the table LAB.

35. Shreyas is a programmer, who has recently been given a task to write a user defined function named `write_bin()` to create a binary file called `Cust_file.dat` containing customer information – customer number (`c_no`), name (`c_name`), quantity (`qty`), price (`price`) and amount (`amt`) of each customer. The function accepts customer number, name, quantity and price. Thereafter, it displays the message 'Quantity less than 10 ... Cannot SAVE', if quantity entered is less than 10. Otherwise the function calculates amount as `price*quantity` and then writes the record in the form of a list into the binary file.

```
import pickle
def write_bin():
    bin_file=_____ # Statement 1
    while true:
        c_no=int(input("enter customer number"))
        C_name=input("enter customer name")
        qty=int(input("enter qty"))
        price=int(input("enter price"))
        if _____ # Statement 2
            print("Quantity less than 10..Cannot SAVE")
        else:
            amt=price * qty
            c_detail=[c_no,c_name,qty,price,amt]
            _____ # Statement 4
            _____ # Statement 5
            _____ # Statement 6
```

- (i) Write the correct statement to open a file '`Cust_file.dat`' for writing the data of the customer.
 (ii) Which statement should Shreyas fill in Statement 2 to check whether quantity is less than 10.
 (iii) Which statement should Shreyas fill in Statement 3 to write data to the binary file and in Statement 4 to stop further processing if the user does not wish to enter more records.

OR

(Option for part (iii) only)

- (iii) What should Shreyas fill in Statement 5 to close the binary file named `Cust_file.dat` and in Statement 6 to call a function to write data in binary file?

ANSWERS

Delhi Set-I

64/5/1

SECTION - A

1. **True.**
Explanation: Identifiers are names given to parts of a program – variables, functions.
2. **Option (b) is correct.**
Explanation: false is a Boolean data and non_local is not a keyword.
3. **Option (b) is correct.**
Explanation: Tuples are immutable and insert method will not work on them.
4. **Option (a) is correct.**
Explanation: $5 < 10$ and $12 > 7$ or not $7 > 4$
True and True or not True
True and True or False
True or False
True
5. **Option (d) is correct.**
Explanation: The partition() method searches the first occurrence of the specified string, and splits the string into a tuple containing three elements. In question specified string is " " (space) so,
 - The first element contains the part before the specified string (space).
 - The second element contains the specified string (space).
 - The third element contains the part after the specified string (space).
6. **Option (d) is correct.**
Explanation: Append-only mode (a) is used to insert the text at the end of the file. When the file is opened in append mode in Python, the handle is positioned at the end of the file.
7. **Option (a) is correct.**
Explanation: The sort() function of a list arranges the elements in ascending order.
8. **Option (b) is correct.**
Explanation: Not equal to compares two values and returns a Boolean indicating whether the two values are not equal or equal.
9. **Option (d) is correct.**
Explanation: Statement 2 : 95 is not a key of the dictionary.
Statement 4 : pop() method requires the key of the item to be popped.
10. **Option (d) is correct.**
Explanation: The number of rows/tuples in a relation is called cardinality of the table.
11. **Option (a) is correct.**
Explanation: By default reference point is 0, that is the beginning of the file.
12. **Option (b) is correct.**
Explanation: The order by clause can be used to arrange the data of a table in a specific order.

13. **Option (c) is correct.**
Explanation: Microwaves are used for point to point or unicast communication.
14. **Option (b) is correct.**
Explanation: $(4 + 3 * 5/3 - 5\% 2)$
 $4 + 15/3 - 5\% 2$
 $4 + 5.0 - 5\% 2$
 $4 + 5.0 - 1$
8.0
15. **Option (b) is correct.**
Explanation: The sum() function returns the sum of all elements of a list.
16. **Option (b) is correct.**
Explanation: The fetchall() function fetches all the records of the table and returns a list comprising tuples, each representing a record.
17. **Option (a) is correct.**
Explanation: To use a function the respective module must be imported. The import statement can be written anywhere before using the function.
18. **Option (a) is correct.**
Explanation: Stack follows the Last-In –First – Out approach.

SECTION - B

19. Errors in code


```
def max_num(L):
    max=L(0)
    for a in L:
        if a>max
            max=a
    return max
```

Corrected code

```
def max_num(L):
    max=L[0]
    for a in L:
        if a>max:
            max=a
    return max
```

20. (a)

Wired transmission	Wireless transmission
1. Physical cables are required.	1. No physical cables. Transmission through air.
2. Maintenance and repair is difficult and costly.	2. Maintenance is easier.
3. Not harmful to health.	3. Harmful for health.
4. Not effected by weather effects.	4. Affected by weather conditions.
5. Not so suitable for long distance transmission.	5. Suitable for long distance transmission.

OR

(b)

Uniform Resource Locator (URL)	Domain Name
If you want to find a particular website, URL is best for it because a URL is a complete web address to find a particular website.	The main motive of the domain name is to make it easier to access a website. They are more used as a brand and are usually referred to as a brand name.
URL is a string that represents the complete web address of any web page.	A domain name is a human-friendly text form of the IP address.
It is the string that represents a complete web address that contains the domain name.	It is the part of the URL that is more human friendly.
It also contains the following parts- method, protocol, hostname, port, and path of the file.	It contains three parts- Top Level Domain, Intermediate Level, and the Low Level.

Example: In the URL 'https://cloudflare.com/learning', 'cloudflare.com' is the domain name

21. (a) Output: ["Rajat", "Rajan", "Ashish"]
Explanation: Listofnames [-1 : -4 : -1] returns elements from index -1 to -3 decrementing by -1.

(b) Output: 1

Explanation: tup1.index(20) returns the index of the 1st occurrence of 20 in the tuple.

22. All the candidate keys that are not primary key are referred to as Alternate key.

Example: Consider the table student as per following structure :

Table : Student

Roll	Name	Phone	Aadhar	Marks
------	------	-------	--------	-------

In the student table :

Candidate keys : Roll, Phone, Aadhar

If Primary key is : Roll

Alternate keys : Aadhar, Phone

23. (a) **Full forms:**
 HTML : Hypertext Markup Language
 TCP : Transmission Control Protocol

(b) In networking, a protocol is a set of rules for formatting and processing data. Network protocols are like a common language for computers. The computers within a network may use vastly different software and hardware, however, the use of protocols enables them to communicate with each other regardless.

24. (a) ['CSCS', 'HINDIHINDI', 'PHYSICSPHYSICS', 'CHEMISTRYCHEMISTRY', 'MATHSMATHS']

Explanation: The code iterates through the elements of the list and modifies the list with element + element, if the number of elements in the list is >4. Here the list contains 5 elements, so each element is replicated by 2 in all positions.

OR

(b) Output: 65#70@

Explanation: The call() function checks the value of global a. Since a is 30 and 30 % 2 gives 0 in both the function calls, the statement x += a executes, that gives the values 30 + 35 and 30 + 40 in the respective calls.

25. (a)

CHAR	VARCHAR
CHAR is Used to store strings of fixed size.	VARCHAR is Used to store strings of variable length.
Its range in size from 1 to 8000 bytes.	Its range in size from 1 to 8000 bytes.
It Uses a fixed amount of storage, based on the size of the column.	It Uses varying amounts of storage space based on the size of the string stored.
It takes up 1 to 4 byte for each character, based on collation setting.	It takes up 1 to 4 byte for each character based on collation and requires one or more bytes to store the length of the data.
Better performance.	Slightly poorer performance because length has to be accounted for.

Example: Consider the table student given below :

Table : Student

Roll	Name	Phone	Aadhar	Marks
------	------	-------	--------	-------

If the user uses char(30) for the Name field every value will occupy 30 characters, irrespective of whether the name stored is "Ria" or "Ramakrishnan Ayyar". Instead if varchar(30) is used, for "Ria" it will occupy 3 units, whereas for "Ramakrishnan Ayyar", 18 units will be occupied.

OR

- (b) DDL : Create, Alter
 DML : Update, Delete

SECTION - C

26. (a) Rows : 2
 Columns : 4

Explanation: In a natural join the common field is not repeated, and only common row of same field will be display.

(b) (i)

F_Name	City
SAHIL	KANPUR
VEDA	KANPUR
SAMEER	ROOP NAGAR
MAHIR	SONIPAT
MARY	DELHI
ATHARVA	DELHI

(ii) DISTINCT(CITY)
KANPUR
ROOP NAGAR
DELHI
SONIPAT
(iii)

F_Name	STATE
SAHIL	UTTAR PRADESH
MAHIR	HARYANA
ATHARVA	DELHI
VEDA	UTTAR PRADESH

(iv)

CITY	COUNT(*)
KANPUR	2
ROOP NAGAR	1
DELHI	2
SONIPAT	1

27. (a)

```
def LongLines():
    f=open("Lines.txt","r")
    lst=f.readlines()
    for ln in lst:
        Line=ln.split(' ')
        if len(Line)>=10:
            print(ln)
    f.close()
```

OR

(b)

```
def count_words():
    f=open("Details.txt","r")
    lst=f.readlines()
    wrd=""
    count=0
    for ln in lst:
        Line=ln.split(' ')
        for wrd in Line:
            if wrd[-1]>='0' and wrd[-1]<='9':
                count+=1
    wrd=""
    print("No. of words ending with a digit is :",count)
    f.close()
```

28. (a) (i) $\frac{\min(\text{Price})}{200}$ $\frac{\max(\text{Price})}{4300}$

(ii)

Company	Count(*)
LOGITECH	2
CANON	2

(iii)

PROD_NAME	QTY_SOLD
MOUSE	3
KEYBOARD	2
JOYSTICK	2

(iv)

PROD_NAME	COMPANY	QUARTER
MOUSE	LOGITECH	2
LASER PRINTER	CANON	1
KEYBOARD	LOGITECH	2
JOYSTICK	IBALL	1
SPEAKER	CREATIVE	NULL
DESKJET PRINTER	CANON	NULL

(b) Show Databases;

29.

```
def EOReplace():
    L=eval(input("Enter list of numbers :"))
    print("Original list :",L)
    for a in range(len(L)):
        if L[a]%2==0:
            L[a]+=1
        elif L[a]%2!=0:
            L[a]-=1
    print("Modified list :",L)
EOReplace()
```

30. (a)

```
stack=[]
def Push_Cust(Lst):
    if Lst[1]=="Delux":
        stack.append(Lst[0])
def Pop_Cust():
    if len(stack)==0:
        print("Underflow")
    else:
        stack.pop()
```

OR

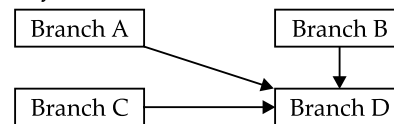
(b)

```
stack=[]
def Push(vehicle):
    for key in vehicle:
        str=vehicle[key].lower()
        if str=="tata":
            stack.append(key)
```

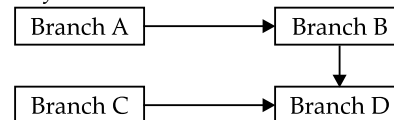
SECTION - D

31. (i) Branch D, as it has the maximum number of computers.

(ii) Layout 1



Layout 2



(iii) Hub/Switch

Explanation: Hub/Switch is an efficient device that can connect multiple computers together. It allows multiple pairs of communication simultaneously and can filter network traffic.

(iv) WAN : Wide area network.

Since the distance is 300KM ,the network formed is a WAN.

(v) FTP : File transfer protocol

The File transfer protocol can be used for transferring (Uploading and downloading) files.

32. (a) (i) 10#25#15
20#25#25

Explanation: The randint (x, y) returns a random value between x and y inclusive of x and y.

Here all the three calls to the randint() function return random values between index 1 to 4 of the list M.

(b) Statement 1: mysql.connector

Statement 2: mycursor.execute("Delete from employee where E_code='E101'")

Statement 3: mydb.commit()

OR

(a) N1@3

Explanation: The function makenew() iterates through each of the characters of the string passed and creates a new string comprising of uppercases of the string characters and the values of count or the original characters depending on the values of count and cases of the characters in the string.

(b) Statement 1: mysql.connector

Statement 2: mycursor.execute("Select * from employee where city='Delhi'")

Statement 3: mycursor.fetchall()

33. (a) Difference between csv file and text file

.txt File: This is a plain text file which can be opened using a notepad present on all desktop PCs running MS Windows, any version. You can store any type of text in this file. There is no limitation of what so ever text format.

.csv File: abbreviation of "comma seperated values" This is a special file extension commonly used by MS Excel. Basically this is also a plain text file but with a limitation of comma seperated values. Normally when you double click this type of file it will open in MS Excel. If you do not have MS Excel installed on your computer or you find Notepad easy to use then you also can open this file in a notepad by right clicking the file and from the menu select "Open With" and then choose notepad.

import csv

```
def COURIER_ADD():
    cid=""
    sname=""
    src=""
    dest=""
    f = open("courier.csv", "w", newline="")
    courierwriter=csv.writer(f)
    ans='y'
    courierrec=[]
    while ans=='y':
        cid=input("Enter courier id:")
        sname=input("Enter sender name")
        src= input("Enter source :")
        dest= input("Enter destination :")
        rec=(cid,sname,src,dest)
        courierrec.append(rec)
        ans=input("Continue (y/n)")
    courierwriter.writerow(courierrec)
    f.close()
def COURIER_SEARCH():
    d=""
    ds=""
    ds=input("Enter destination to search:")
    with open("courier.csv", "r", newline='') as fh:
        creader=csv.reader(fh)
        for rec in creader:
            d=str(rec[3])
            if d==ds:
                print(rec)
        fh.close()
COURIER_ADD()
COURIER_SEARCH()
```

```
import csv
def COURIER_ADD():
    cid=""
    sname=""
    src= input("Enter source :")
    dest= input("Enter destination :")
    rec=(cid,sname,src,dest)
    courierrec.append(rec)
    ans=input("Continue (y/n)")
    courierwriter.writerow(courierrec)
    f.close()
def COURIER_SEARCH():
    d=""
    ds=""
    ds=input("Enter destination to search:")
    with open("courier.csv", "r", newline='') as fh:
        creader=csv.reader(fh)
        for rec in creader:
            d=str(rec[3])
            if d==ds:
                print(rec)
        fh.close()
COURIER_ADD()
COURIER_SEARCH()
```

OR

(b) Files are limited resources managed by the operating system, making sure files are closed after use will protect against hard-to-debug issues like running out of file handles or experiencing corrupted data.

Python doesn't flush the buffer, that is, write data to the file, until it's sure you're done writing, and one way to do this is to close the file. If you write to a file without closing, the data won't make it to the target file.

```
import csv
def Add_Book():
    bid=""
    bname=""
    pub=""
    f = open("Book.csv", "w", newline='')
    bookwriter=csv.writer(f)
    ans='y'
    bookrec=[]
    while ans=='y':
        bid=input("Enter book id:")
        bname=input("Enter book name")
        pub= input("Enter publisher")
        rec=(bid,bname, pub)
        bookrec.append(rec)
        ans=input("Continue (y/n)")
    bookwriter.writerow(bookrec)
    f.close()
def Search_Book():
    count=0
    pub=""
    p=""
    pub=input("Enter publisher name to search:")
    with open("Book.csv", "r", newline='') as fh:
        breader=csv.reader(fh)
        for rec in breader:
```

```

p=str(rec[2])
if p==pub:
    count+=1
print("No. of books published by
",pub,"=",count)
fh.close()

```

34. (i) Candidate key : LABNO
(ii) Degree : 5 , Cardinality : 5
(iii) (a) Insert into LAB values("L006","Physics","John",40,"III");
(b) Update LAB set capacity=capacity + 10 where Floor="I";

OR

- (iii) (a) Alter table LAB ADD CONSTRAINT Primary Key(LABNO);
(b) Drop table LAB;

35. Statement 1: open("Cust_file.dat","wb")
Statement 2: qty<10:
Statement 3: pickle.dump(c_detail,bin_file)
Statement 4: break

OR

- (iii) Statement 5: bin_file.close()
Statement 6: write_bin()

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