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Pre-Board Sample Papers

CBSE EXAM 2024 20 Sets

Class : 12th

Sub : Computer Science



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Sample Paper 1
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
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Section A

1. The output of the code will be :

```
s="Wonders of World"  
print(s.count('O') + s.index('o'))
```

(a) 3	(b) 4
(c) 2	(d) 1
2. The constraint that is used to provide a condition on a field to take specific values only is :

(a) NULL	(b) PRIMARY KEY
(c) CHECK	(d) NOT NULL
3. Which of the following are random number generators ?

(a) randint()	(b) randrange()
(c) random()	(d) All of these
4. Which of the following are sequence of character data?

(a) Lists	(b) Tuples
(c) Strings	(d) Dictionaries
5. A device that connects two dissimilar networks is

(a) modem	(b) repeater
(c) bridge	(d) gateway
6. In which file, no delimiters are used for line and no translations occur?

(a) Text file	(b) Binary file
(c) CSV file	(d) None of these
7. State True or False
"Multiple elements can be added at the end of list by the append method".
8. These operators are used to make a decision on two conditions.

(a) Logical	(b) Arithmetic
(c) Relational	(d) Assignment

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SOLUTIONS

9. In files, there is a key associated with each record which is used to differentiate among different records. For every file, there is atleast one set of keys that is unique. Such a key is called
- (a) unique key
 - (b) prime attribute
 - (c) index key
 - (d) primary key
10. `a = 1.0`
`b = 1.0`
`a is b # Line 1`
Output of Line 1 will be
- (a) False
 - (b) True
 - (c) 1.0
 - (d) 0.0
11. Which of the following is a correct syntax to add a column in SQL command?
- (a) `ALTER TABLE table_name ADD column_name data_type;`
 - (b) `ALTER TABLE ADD column_name data_type;`
 - (c) `ALTER table_name ADD column_name data_type;`
 - (d) None of the above
12. In complex number $a + ib$, a represents as
- (a) real part
 - (b) imaginary part
 - (c) special part
 - (d) None of these
13. `a = 6`
`b = 5.5`
`sum = a+b`
`print(sum)`
`print(type (sum))`
- (a) 11.5
 - (b) 10.5
 - (c) None
 - (d) None of these
- `<class 'float'>` `<class 'float'>`
`<class 'int'>`
14. A column storing Name of a department in a table Emp will be of type
- (a) int
 - (b) date
 - (c) float
 - (d) varchar
15. The.....keyword sorts the records in ascending order by default.
- (a) LIKE
 - (b) UPDATE
 - (c) ORDER
 - (d) ORDER BY
16.method takes a string and writes it in the file.
- (a) `writelines()`
 - (b) `write()`
 - (c) `writerow()`
 - (d) `writer()`

Directions : (Q.Nos.-17 and 18) are Assertion and Reason based Questions.

17. Assertion (A) Built-in functions are predefined in the system and can be directly used in any program.
Reason (R) `id()` and `type()` are built-in functions in Python.
- (a) Both A and R are true and R is the correct explanation for A.
 - (b) Both A and R are true but R is not the correct explanation for A.
 - (c) A is true but R is false.
 - (d) A is false but R is true.
18. **Assertion (A)** The CSV files are like TEXT files and are comma separated value files.
Reason (R) The data stored in CSV files are separated by comma by default. Although the delimiter can be changed.
- (a) Both A and R are true and R is the correct explanation for A.
 - (b) Both A and R are true but R is not the correct explanation for A.
 - (c) A is true but R is false.
 - (d) A is false but R is true.

Section - B

19. Riya was asked to accept a list of even numbers ,but she did not put the relevant condition while accepting the list of numbers. She wrote a user defined function `odd to even (L)` that accepts the list `L` as an argument and converts all the odd numbers into even by multiplying them by 2.

```
def oddtoeven (L)
for i in range (size(L)):
    if (L[i]%2! == 0)
        L[i]= L[i] ** 2
    print (L)
```

There are some errors in the code . Rewrite the correct code.

20. How are E-mail and chat applications different?

or

How are LAN and MAN different?

21. Observe the code and write the output

(a) `'arihant publication'`.
`count('hant', 0, 10)`

(b)

```
dic = {}
dic [(1, 2, 4)] = 8
dic [(4, 2, 1)] = 10
dic [1, 2] = 24
sum = 0
for i in dic :
    sum = sum + dic[i]
print (sum)
```

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SOLUTIONS

22. Write about the terms degree and cardinality of a table.

23. (a) Write the full forms of

(i) URL

(ii) VoIP

(b) Write the use of SMTP.

24. Find the output of following code.

```
dic = {"Nitin" : (21, "NIIT"), "Ankit" : (15, "NIIT")}
print("The original dictionary : ", str(dic))
result= [(key, i, j) for key, (i, j) in dic.items()]
print("The list after conversion : ", str(result))
```

or

What output will be generate when the following Python code is executed?

```
def ChangeList () :
    l =[]
    l1=[]
    l2=[]
    for i in range(1, 10):
        l.append(i)
    for i in range(10, 1, -2):
        l1.append(i)
    for i in range(len (l1)):
        l2.append(l1[i] + l[i])
    l2.append (len(l)- len(l1))
    print(l2)
ChangeList()
```

25. Differentiate between DROP and DELETE commands of SQL.

or

Identify any two DML commands from the following and also explain.

ALTER , INSERT , UPDATE , DROP , CREATE

Section-C

26. (a) Consider the following tables - STUDENT and STREAM :

TABLE: STUDENT

SCODE	NAME	AGE	STRCDE	POINTS	GRADE
101	Amit	16	1	6	NULL
102	Arjun	13	3	4	NULL
103	Zaheer	14	2	1	NULL

TABLE: STREAM

STRCDE	STRNAME
--------	---------

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SOLUTIONS

1	SCIENCE+COMP
2	SCIENCE+ BIO
3	SCIENCE+ECO
4	COMMERCE+MATHS

What will be the output of the following statement?

```
SELECT NAME, STRNAME FROM STUDENT S, STREAM ST WHERE S.STRCDE=ST.STRCDE;
```

(b) Write the output for SQL queries (i) to (iv), which are based on the table ITEMS.

TABLE: ITEMS					
Code	IName	Qty	Price	Company	TCode
1001	DIGITAL PAD 12i	120	11000	XENITA	T01
1006	LED SCREEN 40	70	38000	SANTORA	T02
1004	CAR GPS SYSTEM	50	2150	GEOKNOW	T01
1003	DIGITAL CAMERA 12X	160	8000	DIGICLICK	T02
1005	PEN DRIVE 32 GB	600	1200	STOREHOME	T03

(i) `SELECT MAX(Price), MIN(Price) FROM ITEMS;`

(ii) `SELECT Price * Qty AS AMOUNT
FROM ITEMS WHERE Code=1004;`

(iii) `SELECT DISTINCT TCode FROM ITEMS;`

(iv) `SELECT MAX(Company) FROM ITEMS WHERE Price > 7000;`

27. Write a function countEU() in Python, which should read each character of a text file. IMP.TXT should count and display the occurrence of alphabets E and U (including small cases e and u too).

e.g. If the file content is as follows :

Pinaky has gone to his friend's house.

His friend's name is Ravya. Her house is 12 km from Pinaky's house.

The countEU() function should display the output as

E : 8

U : 3

or

Write a Python program to find the longest word in file "status.txt". If contents of status.txt are Welcome to your one-step solutions for all your study, practice and assessment need for various competitive and recruitment examinations and school segment. We have been working tirelessly for over a decade to make sure that you have best in class study resources because you deserve SUCCESS AND NOTHING LESS...

Output should be

Longest word : examinations

28. (a) Consider the following tables GARMENT and FABRIC. Write SQL commands for the statements (i) to (iv).

TABLE: GARMENT				
GCODE	DESCRI-PTION	PRICE	FCODE	READY-DATE
10023	PENCIL SKIRT	1150	F03	19-DEC-08

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10001	FORMAL SHIRT	1250	F01	12-JAN-08
10012	INFORMAL SHIRT	1550	F02	06-JUN-08
10024	BABY TOP	750	F03	07-APR-07
10090	TULIP SKIRT	850	F02	31-MAR-07
10019	EVENING GOWN	850	F03	06-JUN-08
10009	INFORMAL PANT	1500	F02	20-OCT-08
10007	FORMAL PANT	1350	F01	09-MAR-08
10020	FROCK	850	F04	09-SEP-07
10089	SLACKS	750	F03	20-OCT-08

TABLE: FABRIC	
FCODE	TYPE
F04	POLYSTER
F02	COTTON
F03	SILK
F01	TERELENE

- (i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.
- (ii) To display the details of all the GARMENTS, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive of both the dates).
- (iii) To display the average PRICE of all the GARMENTS. Which are made up of FABRIC with FCODE as F03.
- (iv) To display FABRIC wise highest and lowest price of GARMENTS from GARMENT table.

(Display FCODE of each GARMENT alongwith highest and lowest price.)

- (b) Write a command to remove all the records of a table "Shipping".

29. Write the definition of a function Reverse (x) in Python, to display the elements in reverse order such that each displayed element is the twice of the original element (element *2) of the List x in the following manner:

Example :

If List x contains 7 integers is as follows:

x [0]	x [1]	x [2]	x [3]	x [4]	x [5]	x [6]
4	8	7	5	6	2	10

After executing the function, the array content should be displayed as follows:

20	4	12	10	14	16	8
----	---	----	----	----	----	---

30. Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations

- (a) Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75.
- (b) Pop and display the content of the stack.

For example If the sample content of the dictionary is as follows

R={"OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82}

The output from the program should be

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SOLUTIONS

TOM ANU BOB OM

or

Alam has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the given operations based on this list.

(a) Traverse the content of the list and push the even numbers into a stack.

(b) Pop and display the content of the stack.

For example, If the sample content of the list is as follows

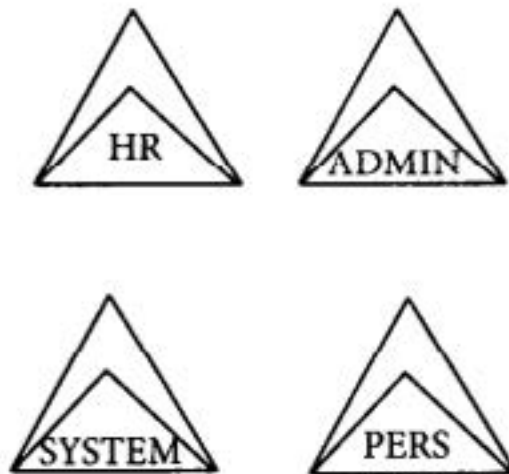
$N = [12, 13, 34, 56, 21, 79, 98, 22, 35, 38]$

Sample Output of the code should be:

38 22 98 56 34 12

Section - D

31. Red Pandas Infosystems has its 4 blocks of buildings. The number of computers and distances between them is given below :



Building	Number of Computers
HR	15
ADMIN	100
SYSTEM	25
PERS	30

Building	Distance
HR -Admin	10 m
HR- System	50 m
HR- Pers	750 m
Admin- System	300 m
Admin- Pers	20 m
System-Pers	250 m

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Answer the following questions with respect to the above :

- (i) Suggest a suitable cable layout for the network.
- (ii) Suggest the best place to house the server of the network.
- (iii) Which topology should be used to connect computers in each building?
- (iv) What kind of network will be formed here? (LAN/MAN/WAN)
- (v) Write one advantage of the topology suggested by you.

32. (a) Find the output of the following Python program:

```
def makenew (mystr):
    newstr = ""
    count = 0
    for i in mystr:
        if count%2!=0:
            newstr = newstr + str (count)
        else:
            if islower (i):
                newstr = newstr + upper (i)
            else:
                newstr = newstr + i
            count += 1
    newstr = newstr + mystr [:1]
    print("The new string is:",
          newstr)

makenew("sTUDeNT")
```

(b) Consider the table Student whose fields are

Scode	Name	Age	Strcde	Points	Grade
101	Amit	16	1	6	NULL
102	Arjun	13	3	4	NULL
103	Zaheer	14	2	1	NULL
104	Gegen	15	5	2	NULL
105	Kumar	13	6	8	NULL

Write the Python code to update grade to 'A' for all these students who are getting more than 8 as points.

The table structure is as follows :

Scode : integer

Name : varchar

Age : integer

Strcde : integer

Points : integer

Grade : varchar

Note the following to establish the connection between Python and MySQL:

Host : localhost

Username : Admin

Password : Admin@123

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The table exists in MySQL database as : Student

or

(a) Write a Python program to remove the characters of odd index values in a string.

(b) Consider the table MobileStock with following fields

M_Id, M_Name, M_Oty, M_Supplier

Write the Python code to fetch all records with fields M_Id, M_Name and M_Supplier from database Mobile.

Consider:

host : localhost

UserName : root

Password : system

Database : Mobile

33. What is CSV file?

Write a program using two functions :

(a) addCustomer() : To write Customer code, Customer name and Amt in file “cust.csv”.

The details of the customers are as follows :

['CustCode', 'CustName', 'Amount']

['001', 'Nihir', '8000']

['104', 'Akshay', '5000']

(b) readCustomer() : To read the details of the customers and display them.

or

When do we use CSV file?

Write a program using following functions :

(a) getInventory() : Write code to accept as many inventory records and store them to the csv file Inventory.csv storing records of inventory as per following structure

PCode Invname Price Reorder

(b) Display() : To display the detail that store in Inventory.csv

Section - E

34. Consider the table MOVIE DETAILS given below

Table : MOVIEDETAILS				
MOVIEID	TITLE	LANGUAGE	RAT-ING	PLAT-FORM
M001	Minari	Korean	5	Netflix
M004	MGR Magan	Tamil	4	Hotstar
M010	Kaagaz	Hindi	3	Zee5
M011	Harry Potter and the Chamber of Secrets	English	4	Prime Video
M015	Uri	Hindi	5	Zee5
M020	Avengers: Endgame	English	4	Hotstar

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- (i) Identify the degree and cardinality of the table.
- (ii) Which field should be made the primary key? Justify your answer.
- (iii) Write statements to :
 - (a) Delete the records whose language is “English”
 - (b) Add a new record : “M050”, “Palki”, “Hindi”, 5, “Amazon Prime”.

or

(Option for part (iii) only)

Write statements to :

- (a) Add a new column “DAYS” of type integer
- (b) Remove the column “RATING”

35. Below is a program to delete the line having word (passed as argument). Answer the questions that follow to execute the program successfully.

```
import .....
def filedel (word):
    file1 = open ("Python. txt ",
                  ".....")
    nfile = open ("algol.txt", "w")
    while True:
        line = file1.readline( )
        if not line:
            break
        else :
            if word in line :
                .....
            else :
                print(line)
                nfile.....(line)
    file1.close()
    nfile.close()
filedel ('write')
```

- (i) Name the module that should import in Line 1.
- (ii) In which mode, above program should open the file to delete the line?
- (iii) Fill the blank in Line 11 and Line 14.

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Sample Paper 2
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. Given L= [2,3,4,5,6]. The output of print(L[-2]) is
(a) 6 (b) Error
(c) 5 (d) 3
2. The method used to get the position of file pointer is
(a) tell() (b) get()
(c) seek() (d) pos()
3. This function is used to calculate total occurrence of given elements of list.
(a) len() (b) sum()
(c) count() (d) extend()
4. You can repeat the elements of the tuple using which operator?
(a) * (b) +
(c) ** (d) %
5. The rule of referential integrity is based on.....
(a) Primary key (b) Foreign key
(c) Alternate key (d) None of these
6. Which method returns the next row from the result set as tuple?
(a) fetchone () (b) fetchmany ()
(c) fetchall () (d) rowcount
7. Which of the following command displays the attributes of a table along with their types and sizes?
(a) Alter (b) Show structure
(c) Show create table (d) View structure
8. The.....command adds records to a table.
(a) ADD (b) APPEND
(c) ADDRECORD (d) INSERT

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9. In a.....topology, the nodes are connected by separate cables.
(a) Star (b) Bus
(c) Tree (d) Mesh
10. Given a list Lst= [45,100,20,30,50]. What will be the output of Lst[: :]?
(a) [45,100,20,30,50] (b) []
(c) Error (d) [45]
11. State True or False
“Given a dictionary Studict. The statement Studict.items() displays the keys of the item only.”
12. Which module is to be imported to use the floor() function?
(a) statistics (b) matplotlib
(c) random (d) math
13. Which function is used to convert string into tuple?
(a) string() (b) tup()
(c) tuple() (d) str_tuple()
14. A file can be opened both for reading and writing using.....mode.
(a) r (b) r+
(c) a (d) None of these
15. The.....clause can be used as an alternative to multiple OR.
(a) IN (b) BETWEEN
(c) NOT (d) range
16. The purpose of the primary key in a database is to
(a) unlock the database
(b) provide a map of the data
(c) uniquely identify a record
(d) establish constraints on database operations

Directions : (Q.Nos.-17 and 18) are Assertion and Reason based Questions.

17. Assertion (A) To use the randint() function , the random module needs to be included in the program.
Reason (R) Some functions are present in modules and to use them the respective module needs to be imported.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.
18. Assertion (A) The contents of a Binary file are not directly interpretable.
Reason (R) Modes in which binary files can be opened are suffixed with 'b' like : rb/wb etc.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

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SOLUTIONS

Section - B

19. Find the error(s).

<code>L1 = [7, 2, 3, 4]</code>	Statement 1
<code>L2 = L1 + 2</code>	Statement 2
<code>L3 = L1 * 2</code>	Statement 3
<code>L = L1.pop(7)</code>	Statement 4

20. Name two switching techniques used to transfer data between two terminals (computers).

or

Arrange the following network in ascending order of their area:

LAN, PAN, WAN, MAN

21. (a) Observe the code and write the output:

```
t = 'HELLO'
t1 = tuple(t)
print(t1)
```

(b) Predict the output of the following code

```
x = (1, 2, 3)
y = (3, 4)
t = x + y
print(t)
```

22. Differentiate between an attribute and a tuple with an example.

23. (a) Write the full forms of

- (i) WVVW
- (ii) TCP/IP

(b) List down the types of computer networks.

24. Identify the output of the following Python code.

```
D = {1: "One", 2: "Two", 3: "Three"}
L = [ ]
for K, V in D.items():
    if V[0] == "T":
        L.append(K)
print(L)
```

or

Identify the output of the following Python statement.

```
lst1 = [10, 15, 20, 25, 30]
lst1.insert(3, 4)
lst1.insert(2, 3)
print (lst1[- 5])
```

25. Describe the following terms

- (i) Domain
- (ii) DB2

or

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Identify commands/functions for the following actions :

- (i) To add a new column to a table.
- (ii) To get the sum of all values in a column of a table.

Section - C

26. (a) Consider the tables CARS and SUPPLIER given below. What will be the output of the statement given?

TABLE: CARS						
Ccode	Car-Name	Make	Color	Capa-city	Cha-rges	Scode
501	A-star	Suzuki	RED	3	14	1
503	Indigo	Tata	SILVER	3	12	2
502	Innova	Toyota	WHITE	7	15	2
509	SX4	Suzuki	SILVER	4	14	2
510	C-Class	Merc-edes	RED	4	35	4

Table : SUPPLIER	
Scode	Sname
1	Great Suppliers
2	Himalayan Vehicles
3	Road Motors
4	Speed

SELECT CarName, Sname, Charges FROM CARS C, SUPPLIER S WHERE C.Scode= S. Scode AND Charges > 15;

- (b) Write the output for SQL queries (i) to (iv), which are based on the table CARDEN.

TABLE: CARDEN					
Ccode	CarName	Make	Color	Capa-city	Charges
501	A-star	Suzuki	RED	3	14
503	Indigo	Tata	SILVER	3	12
502	Innova	Toyota	WHITE	7	15
509	SX4	Suzuki	SILVER	4	14
510	C-Class	Mercedes	RED	4	35

- (i) SELECT COUNT(DISTINCT Make) FROM CARDEN;
- (ii) SELECT COUNT(*) Make FROM CARDEN;
- (iii) SELECT CarName FROM CARDEN WHERE Capacity = 4;
- (iv) SELECT SUM (Charges) FROM CARDEN WHERE Color = "SILVER";

27. Write a function Del() to delete the 4th word from a text file school.txt.

or

Write a function countmy() in Python to read the text file "Data.txt" and count the number of times "my" occurs in the file.

For example If the file contents are:

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SOLUTIONS

My first book was. Me and My Family.
 It gave me chance to be known to the world.
 The output of the function should be
 No. of times “my” occur : 2

28. (a) Write the output of the queries (i) to (iv) based on the table FURNITURE given below.

Table : FURNITURE				
FID	NAME	DATE OF PURCHASE	COST	DISCOUNT
B001	Double Bed	03-JAN-2018	45000	10
T010	Dinning Table	10-MAR-2020	51000	5
B004	Single Bed	19-JUL-2021	22000	0
C003	Long back Chair	30-DEC-2016	12000	3
T006	Console Table	17-NOV-2019	15000	12
B006	Bunk bed	01-JAN-2021	28000	14

- (i) `SELECT SUM(DISCOUNT) FROM FURNITURE WHERE COST>15000;`
 (ii) `SELECT MAX(DATEOFPURCHASE) FROM FURNITURE;`
 (iii) `SELECT * FROM FURNITURE WHERE DISCOUNT>5 AND FID LIKE "T%";`
 (iv) `SELECT DATEOFPURCHASE FROM FURNITURE WHERE NAME IN ("Dinning Table", "Console Table");`

- (b) Write a command to remove all the records of the table “Garments” whose Readydate is after “20-Oct-2008”.

29. Write a user-defined function find-name (name), where name is an argument in Python to delete phone number from a dictionary phone-book on the basis of the name, where name is the key.

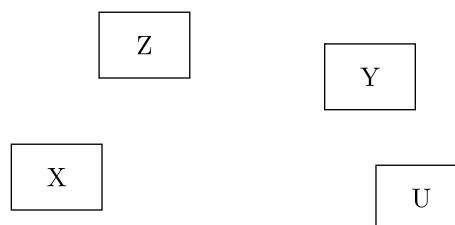
30. Write Push (contents) and Pop (contents) methods in Python to add numbers and remove numbers considering them to act as Push and Pop operations of stack.

or

Write the Push operation of stack containing person names. Notice that the name should only accept characters, spaces and period (.) except digits. Assume that Pname is a class instance attribute.

Section - D

31. Sony corporation has set up its 4 offices in the city of Srinagar, with its offices X, Z, Y, U:



Branch to Branch distance is given below:

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SOLUTIONS

X to Z	40 m
Z to Y	60 m
Y to X	135 m
X to U	70 m
Z to U	165 m
Z to U	80 m

Number of computers in each of the offices is as follows:

X	50
Z	130
Y	40
U	15

- (i) Suggest a suitable cable layout of connectivity of the offices.
- (ii) Suggest placement of server in the network with suitable reason.
- (iii) Suggest placement of following devices in the network:
 - (a) Switch/Hub
 - (b) Repeater
- (iv) Suggest a suitable topology for connecting the computers in each building.
- (v) Write any one advantage of the topology suggested.

32. (a) Carefully observe the following Python code and answer the question that follow:

```
x = 5
def func2():
    x = 3
    global x
    x = x + 1
    print(x)
    print(x)
```

On execution the above code, produces the following output:

```
6
3
```

Explain the output with respect to the scope of the variables.

(b) Write the code to create a table Product in database Inventory with following fields

Fields	Datatype
PID	varchar(5)
PName	char(30)
Price	float
Rank	varchar(2)

Note the following to establish the connection between Python and MySQL:

Host : localhost

Username : system

Password : hello

Database : Inventory

or

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SOLUTIONS

- (a) Find the output of the following program:

```
def calcresult ():
    i=9
    while i>1 :
        if(i%2 == 0):
            x = i%2
            i = i - 1
        else:
            i = i - 2
            x = i
    print(x**2)
```

- (b) Which data will get added in table Company by following code?

```
import mysql.connector
con = mysql.connector.connect (
    host = "localhost",
    user = "system",
    passwd = "hello",
    database = "connect").
cur = con.cursor ( )
sql = "insert into Company (Name,
    Dept, Salary) values (%s,
                                %s, %s)"
val = ("ABC", "DBA", 35000)
cur.execute (sql.val)
con.commit ( )
```

Consider :

host : localhost

UserName : system

Password : hello

Database ; connect

33. Does python create a file itself if the file doesn't exist in the memory? Illustrate your answer with an example:

Write a program using following functions :

- (a) inputStud() : To input details of as many students and add them to a csv file "college.csv" without removing the previous records.

SrNo	Studname	City	Percentage
------	----------	------	------------

- (b) readCollege() : To open the file "college.csv" and display records whose city is "Kolkata"

or

Write a statement to create a data.txt file with the following text.

Python file handling is very interesting and useful.

Write a python code using two functions as follows

- (a) removerow() : To remove a record from the college file "College.csv" having following structure.

SrNo	Studname	City	Percentage
------	----------	------	------------

- (b) getCollege() : To read the records of the college file "College.csv" and display names of students whose names start with a lowercase vowel.

Click the Following Button to See the Free MS/Solutions**SOLUTIONS**

Section - E

34. Consider the table APPLICANTS

TABLE: APPLICANTS					
No	NAME	FEE	GEN-DER	C_ID	JOINYEAR
1012	Amandeep	30000	M	A01	2012
1102	Avisha	25000	F	A02	2009
1103	Ekant	30000	M	A02	2011
1049	Arun	30000	M	A03	2009
1025	Amber	40000	M	A02	2011
1106	Ela	40000	F	A05	2010
1017	Nikita	35000	F	A03	2012
1108	Arluna	30000	F	A03	2012
2109	Shakti	35000	M	A04	2011
1101	Kirat	25000	M	A01	2012

- (i) Which field qualifies to be the Primary key.
- (ii) If all the records of Male applicants are deleted, what will be the cardinality of the table.
- (iii) Write statements to
 - (a) Increase FEE of "M" (Male) applicants by 2000.
 - (b) Display details of "F" (Female) applicants in descending order of FEE.

or

(Option for part (iii) only)

Write statements to

- (a) Change width of column FEE to 20.
- (b) Remove the column C_ID.

35. Given below is a code to open a text file and perform some operations on it. Answer questions with respect to the code given

```
myfile=open("detail.txt", "r")
s =.....      Line 2
print(s)
myfile.close( )
```

- (i) In which mode is the file opened?
- (ii) If the entire file is to be read, write a statement in place of Line 2.
- (iii) What is the original code performing?

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SOLUTIONS

Sample Paper 3
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. What is default value of host?
(a) host (b) localhost
(c) globalhost (d) None of these
2. Which of the following SQL commands displays the structure of a table?
(a) ALTER (b) STRUCTURE
(c) DESCRIBE (d) SHOW DATA
3. State True or False
“Lists and dictionaries are mutable.”
4. Which of the following is the correct output for the execution of the following Python statement?

```
print(5+3**2/2)
```


(a) 32 (b) 8.0
(c) 9.5 (d) 32.0
5. Which path does not start with a leading forward slash ?
(a) Relative (b) Absolute
(c) Both (a) and (b) (d) None of these
6. _____ command adds a primary key to a table after it has been already created.
(a) MODIFY (b) ADD PRIMARY
(c) ALTER (d) ADD KEY
7. The clause to get the unique values from a field of a table is
(a) MAX (b) UNIQUE
(c) DISTINCT (d) None of these

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SOLUTIONS

8. Observe the following tuples and choose the correct option

```
t1=(4, 7, 8, 9)
```

```
t2=(0, 4, 3)
```

```
>>>t=t1+t2
```

```
>>>print(t)
```

(a) (4, 7, 8, 9, 0, 4, 3)

(b) (4, 7, 8, 9, 4, 7, 8, 9)

(b) (4, 7, 8, 9)

(d) None of these

9. _____ is an attribute that makes a link between two tables to fetch corresponding data.

(a) Primary key

(b) Secondary key

(c) Foreign key

(d) Composite key

10. Assume that the position of the file pointer is at the beginning of 3rd line in a text file. Which of the following option can be used to read all the remaining lines?

(a) myfile.read(n-3)

(b) myfile.read(n)

(c) myfile.readline()

(d) myfile.readlines()

11. _____ is a protocol used for uploading and downloading of files in a network.

(a) SMTP

(b) FTP

(c) PPP

(d) VoIP

12. sub = "PYTHON"

```
for i in sub:
```

```
print (i, ' ', end = " ")
```

(a) PYTHON

P
Y
T
H
O
N

(b) H
O
N

(c) None

(d) P, Y, T, H, O, N

13. In complex number $a + ib$, b represents as

(a) real part

(b) imaginary part

(c) special part

(d) None of these

14. Given an object obj1=(10, 20, 30, 40, 50, 60, 70, 80, 90). What will be the output of `print(obj1[3:7:2])`?

(a) (40,50,60,70,80)

(b) (40,50,60,70)

(c) (40,50,60)

(d) (40,60)

15. Which of the following function returns the total number of values?

(a) MAX

(b) MIN

(c) COUNT

(d) SUM

Click the Following Button to See the Free MS/Solutions

SOLUTIONS

16. Which of the following is the correct output for the following execution ?

```
print(print("Biscope"))
```

- (a) Biscope (b) None
(c) Biscope (d) Error
None

Directions : (Q. Nos. 17 and 18) are Assertion and Reason based questions.

17. Assertion (A) A Python function that accepts parameters can be called without any parameters. Reason (R) Functions can carry default values that are used, whenever values are not received from calling function.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.
18. Assertion (A) A CSV file is by default delimited by comma(,), but the delimiter character can be changed. Reason (R) The writerow() function for CSV files has a "delimiter" parameter that can be used to specify the delimiter to be used for a CSV file.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Section - B

19. What will be the output for the following Python statement?

```
L = [10, 20, 30, 40, 50]  
L = L + 5  
print(L)
```

20. Write any two disadvantages of star topology.

or

Why is a switch called an intelligent hub?

21. (a) What will be the output of the following Python code?

```
L = [10, 20]  
L1 = [30, 40]  
L2 = [50, 60]  
L.append(L1)  
L.extend(L2)  
print(L)
```

- (b) Find the output

```
>>> l1 = [1, 2, 3, 4]  
>>> l2 = [1, 2, 3, 4]  
>>> l1 > l2
```

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SOLUTIONS

22. Mention the various advantages of using a DBMS.

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

(i) WAN (ii) GSM

(b) Write down the expansion of Modem. Also, write its role in a network.

24. Write the output of given code :

```
x = (1, 2, 3)
```

```
y = (3, 4)
```

```
t = x + y
```

```
print(t)
```

or

Observe the following tuple and answer the questions that follow:

```
t1 = (70, 56, 'Hello', 22, 2, 'Hi', 'The', 'World', 3)
```

(i) `t1[2 : 4]`

(ii) `t1[- 6]`

25. If R_1 is a relation with 8 rows and 5 columns, then what will be the cardinality of R_1 ?

If 5 rows are added more, what will be the Degree of the table now ?

or

Identify commands/functions for the following actions

(i) To display only records of Trains from the Train table whose starting station is “NDLS”. (Column for starting station is “Start”, table name is “Train”)

(ii) To get the average of percentage of students (Table name : “Student” , Percentage column : “Perc”).

Section - C

26. (a) Consider the tables CITY and LOCATION given below.

Table : CITY		
Field Name	Data Type	Remarks
CITYCODE	CHAR(5)	Primary Key
CITYNAME	CHAR(30)	
SIZE	INTEGER	
AVGTEMP	INTEGER	
POPULATIONRATE	INTEGER	
POPULATION	INTEGER	

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SOLUTIONS

Table: Location	
Citycode	Lname
C1	East
C2	West
C3	South
C4	North

Write a command to display the Cityname and corresponding Location name (Lname), where the average temperature is greater than 35 from the tables.

(b) Write outputs for the SQL commands (i) to (iv) based on the table CUSTOMER given below:

TABLE: CUSTOMER				
CID	CNAME	GENDER	SID	AREA
1001	R SHARMA	FEMALE	101	NORTH
1002	M R TIWARY	MALE	102	SOUTH
1003	M K KHAN	MALE	103	EAST
1004	A K SINGH	MALE	102	EAST
1005	S SEN	FEMALE	101	WEST
1006	R DUBEY	MALE	104	NORTH
1007	M AGARWAL	FEMALE	104	NORTH
1008	S DAS	FEMALE	103	SOUTH
1009	R K PATIL	MALE	102	NORTH
1010	N KRISHNA MURTY	MALE	102	SOUTH

(i) `SELECT COUNT(*), GENDER FROM CUSTOMER GROUP BY GENDER;`

(ii) `SELECT CNAME FROM CUSTOMER WHERE CNAME LIKE 'L%';`

(iii) `SELECT DISTINCT AREA FROM CUSTOMER;`

(iv) `SELECT COUNT(*) FROM CUSTOMER WHERE GENDER="MALE";`

27. Write a Python program that read the data from file 'original.dat' and delete the line(s) having word (passed as an argument). Then write these data after removing lines into file 'duplicate.dat'.

or

Write a program in Python to open a text file "lines.txt" and display all those words whose length is greater than 5.

28. (a) Answer the questions (i) to (iv) on the basis of the following tables SHOPPE and ACCESSORIES.

TABLE: SHOPPE		
Id	SName	Area
S001	ABC Computeronics	CP

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SOLUTIONS

S002	All Infotech Media	GK II
S003	Tech Shoppe	CP
S004	Geeks Tecno Soft	Nehru Place
S005	Hitech Tech Store	Nehru Place

TABLE: ACCESSORIES			
No	Name	Price	Id
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

- (i) To display Name and Price of all the ACCESSORIES in ascending order of their Price.
 - (ii) To display Id and SName of all SHOPPE located in Nehru Place.
 - (iii) To display Minimum and Maximum Price of each Name of ACCESSORIES.
 - (iv) To display Name, Price of all ACCESSORIES and their respective SName, where they are available.
- (b) Write a command to add a new column Remarks varchar(30) to the ACCESSORIES table storing remarks about the product.
29. Write a userdefined function parser(L) that accepts a list as parameter and creates another two lists storing the numbers from the original list , that are even and numbers that are odd.
30. Consider the following stack of characters, where STACK is allocated N = 8 memory cells.
 STACK : A, C, D, F, K,.....
 Describe the STACK at the end of the following operations. Here, Pop and Push are algorithms for deleting and adding an element to the stack.
- (i) Pop (STACK, ITEM)
 - (ii) Pop (STACK, ITEM)
 - (iii) Push (STACK, L)
 - (iv) Push (STACK, P)

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SOLUTIONS

(v) Pop (STACK, ITEM)

(vi) Push (STACK, R)

(vii) Push (STACK, S)

(viii) Pop (STACK, ITEM)

or

Consider the following sequence of numbers:

1, 2, 3, 4

These are supposed to be operated through a stack to produce the following sequence of numbers:

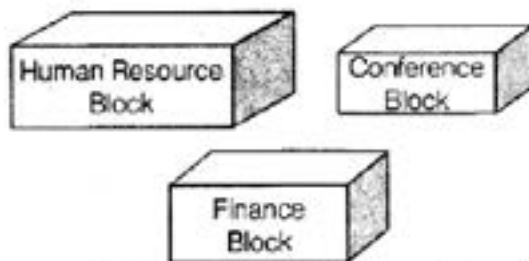
2, 1, 4, 3

List the Push and Pop operations to get the required output.

Section D

31. Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below.

Physical locations of the blocks of TTC



Block to block distance (in m)

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers to be in each block

Block	Computers
Human Resource	25
Finance	120
Conference	90

- Which will be the most appropriate block, where TTC should plan to install their server?
- Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.

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SOLUTIONS

- (iii) Suggest a suitable topology to connect the computers in each building.
- (iv) Which of the following device will be suggested by you to connect each computer in each of the buildings?
- (a) Switch/Hub (b) Modem (c) Gateway
- (v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

32. (a) What will be the output of the following code?

```
value = 50
def display(N):
    global value
    value = 25
    if N%7==0:
        value = value + N
    else:
        value = value - N
print(value, end= "#")
display(20)
print(value)
```

(b) Given below is a table Item in database Inventory.

ItemID	ItemName	Quantity	UnitPrice
101	ABC	5	120
102	XYZ	7	70
103	PQR	8	65
104	XYZ	12	55

Riya created this table but forget to add column ManufacturingDate. Can she add this column after creation of table?

If yes, write the code where user's name and password are system and test respectively.

Note the following to establish the connection between Python and MySQL:

Host : localhost

Username : system

Password : test

Database : Inventory

or

(a) Find the output of the following code :

```
Name= "Python3@1"
R=""
for x in range(len(Name)):
    if Name[x].isupper():
        R=R+Name[x].lower()
    elif Name[x].islower():
        R=R+Name[x].upper()
    elif Name[x].isdigit():
        R=R+Name[x-1]
    else:
        R=R+ "#"
print(R)
```

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SOLUTIONS

(b) Consider the following table structure

Table: Faculty

F_ID (P)
Fname
Lname
Hire_date
Salary

Write the Python code to create the above table.

Consider :

host : localhost

UserName : root

Password : system

Database :School

33. What do you mean by file? What do you mean by file handling?

Write a program code in python to perform the following using two functions as follows :

(a) addBook() : to write to a csv file “book.csv” file book no, book name and no of pages with separator as tab.

(b) countRecords() : To count and display the total number of records in the “book.csv” file

or

Explain open() function with its syntax.

Write python code to perform the following using two user defined functions.

(a) showData() : To display only roll no and student name of the file “student.csv”

RollNo,	Name,	Marks
1,	Nilesh,	65
2,	Akshay,	75

(b) showSelect() : To display only roll number and marks of the students from the csv file “student.csv”

Section-E

34. Consider the following table STORE and answer the questions:

TABLE: STORE					
ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener Classic	23	60	8	31-JUN-09
2003	Balls	22	50	25	01-FEB-10
2002	Gel Pen Premium	21	150	12	24-FEB-10
2006	Gel Pen Classic	21	250	20	11-MAR-09
2001	Eraser Small	22	220	6	19-JAN-09
2004	Eraser Big	22	110	8	02-DEC-09
2009	Ball Pen 0.5	21	180	18	03-NOV-09

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SOLUTIONS

- (i) What is the degree of the table?
- (ii) Write the syntax of the SQL command to change data of the table.
- (iii) Write statements to :

- (a) Display the number of distinct Scodes.
- (b) Display the maximum and minimum quantities.
- (Option for part (iii) only)

Write statements to :

- (a) Display the structure of the STORE table.
- (b) Add a new column Location varchar(50) in the table to store the location details of the items.

35. Given below is a code to open a text file “para.txt” and display the lines that begin with “A”.Some of the codes are missing . Write codes to fill up the blanks :

```
myf=open(... ,...) Blank 1 , Blank 2
lines=myf..... Blank 3
for ln in .... : Blank 4
    if ln[0] == "A":
        print(ln)
```

- (i) Write the missing code for Blank 1.
- (ii) Write the missing code for Blank 2.
- (iii) Write the missing code for Blank 3 and Blank 4.

Sample Paper 4
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. Given L= [2,3,4,5,6]. The output of print(L[-1:-5]) is
(a) [6,5,4] (b) Error
(c) [] (d) [6,5]
2. Rows of a relation are called
(a) relation (b) tuples
(c) data structure (d) an entity
3. If a table carries 10 columns and 15 rows, what is its degree?
(a) 10 (b) 150
(c) 15 (d) 25
4. The.....function returns True if all the characters in a string are digits.
(a) isalnum() (b) isdigit()
(c) isnumber() (d) isalpha()
5. The seek(n) places the file pointer at position n with reference to
(a) Beginning (b) End
(c) Current position (d) Position 10
6. Given a tuple t=(2,5,1,6,3). The statement t.sort() returns
(a) (1,2,3,5,6) (b) (6,5,3,2,1)
(c) Error (d) None of these
7. t1=(9, 6, 7, 6)
t2=(2.8, 12, 20)
The output of the statement below is
print(min(t1) + max(t2))
(a) 26 (b) 25
(c) Error (d) None of these

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SOLUTIONS

8. State True or False

“The method that can be used to delete a range of values from a list is del”.

9. In which module, ceil() function resides ?

- (a) pandas
- (b) pyplot
- (c) random
- (d) math

10. To see a list of all the databases in the system , the.....command may be used.

- (a) Show
- (b) Show databases
- (c) Display databases
- (d) View databases

11. Which among the following are constraints ?

- (a) Primary key
- (b) Unique
- (c) NOT NULL
- (d) All of these

12. in and not in are.....Operators.

- (a) Arithmetic
- (b) Membership
- (c) Logical
- (d) Identity

13. Modulation and demodulation is performed by

- (a) microwave
- (b) satellite
- (c) modem
- (d) gateway

14. A set of possible data values is called

- (a) attribute
- (b) degree
- (c) tuple
- (d) domain

15. The.....attribute of the connection string specifies the password to connect to the database.

- (a) code
- (b) password
- (c) passwd
- (d) All of these

16. While opening a binary file the.....character has to be added to the mode of opening.

- (a) b
- (b) x
- (c) u
- (d) b*

Directions (Q.Nos. 17-18) are Assertion and Reason based questions.

17. Assertion (A) A function with 3 formal parameters must be called with 3 actual parameters.

Reason (R) Since, all the formal parameters are used to produce the output from the function , the function expects the same number of parameters from the function call.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

18. Assertion (A) A binary file uses the dump() function to write data into it.

Reason (R) The load() function reads data from a binary file.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is True but R is false.
- (d) A is false but R is true.

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SOLUTIONS

Section B

19. What will be the output of following code ?

```
L=[10, 30, 50, 60]
L.append(70)
L.insert(2, 80)
L.sort()
print(L)
```

20. Write 2 advantage and 2 disadvantage of bus topology.

or

Which part of TCP/IP is responsible for dividing a file or message into very small parts, at the source computer? Also, define, TCP/IP.

21. Find outputs of following code.

```
(a) L=[118,16, [20,30,50],120]
    L1=[12,16,17]
    L.extend(L1)
    print(L[2][2])
    print(L)
(b) t1=(9,6,1,12)
    t2=(10,11,12)
    print(t1+t2)
    print(t1*2)
    print(t2-t1)
```

22. What do you understand by primary key? Give a suitable example of primary key from a table containing some meaningful data.

23. (a) Write the full forms of

(i) LAN (ii) XML

(b) What was the role of ARPANET in the computer network?

24. What will be the output of the following code, when executed?

```
d={'Name': 'Ram', 'Subjects': ['Eng', 'Physics', 'CS'], 'Marks': [67,78,90]}
print(d['Subjects'])
print(d['Subjects'][2])
```

or

What will be the output of the following code, when executed?

```
tupnames=("India", "Australia",
          ("UK", "Nepal"), "Bangladesh")
print(tupnames[5 : ])
print(tupnames[2][1])
```

25. List the major components of a database system.

or

What is join? What are the different kinds of joins?

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SOLUTIONS

Section C

26. (a) Consider the tables Student and House given below. What will be the output of the statement given?

Table: Student			
Rno	Sname	Class	Hcode
1	Raj	12ScA	C1
2	Shekhar	11ComC	C2
3	Ravi	12HumB	C2
4	Jaisnav	12ScB	C3

Table: House	
Hcode	Lname
C1	East
C2	West
C3	South
C4	North

SELECT S.Sname , H.Lname FROM Student S, House H WHERE S.Hcode = H.Hcode AND Sname LIKE "R%";

- (b) Consider the following table STORE and answer the questions

TABLE: STORE					
ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener Classic	23	60	8	31-JUN-09
2003	Balls	22	50	25	01-FEB-10
2002	Gel Pen Premium	21	150	12	24-FEB-10
2006	Gel Pen Classic	21	250	20	11-MAR-09
2001	Eraser Small	22	220	6	19-JAN-09
2004	Eraser Big	22	110	8	02-DEC-09
2009	Ball Pen 0.5	21	180	18	03-NOV-09

Write SQL commands for the following statements:

- (i) To display details of all the items in the STORE table in ascending order of LastBuy.
 - (ii) To display ItemNo and Item name of those items from STORE table, whose Rate is more than ₹15.
 - (iii) To display the details of those items whose Supplier code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table STORE.
 - (iv) To display minimum rate of items for each Supplier individually as per Scode from the table STORE.
27. Write a program to accept a filename and a position. Using the inputs, call a function SearchFile(Fname, pos) to read the contents of the file from the position to the end. Now, display all those words that start with "U" or "u".

or

Write a program to search a Employee record according to Id from the "emp.txt" file. The "emp.txt" file contains Id, Name and Salary fields. Assume that first field of the employee records (between Id and Name) is separated with a comma(,).

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SOLUTIONS

28. (a) Consider the following tables GARMENT and FABRIC. Write SQL commands for the statements (i) to (iv).

TABLE: GARMENT				
GCODE	DESCRIPTION	PRICE	FCODE	READY-DATE
10023	PENCIL SKIRT	1150	F03	19-DEC-08
10001	FORMAL SHIRT	1250	F01	12-JAN-08
10012	INFORMAL SHIRT	1550	F02	06-JUN-08
10024	BABY TOP	750	F03	07-APR-07
10090	TULIP SKIRT	850	F02	31-MAR-07
10019	EVENING GOWN	850	F03	06-JUN-08
10009	INFORMAL PANT	1500	F02	20-OCT-08
10007	FORMAL PANT	1350	F01	09-MAR-08
10020	FROCK	850	F04	09-SEP-07
10089	SLACKS	750	F03	20-OCT-08

TABLE: FABRIC	
FCODE	TYPE
F04	POLYSTER
F02	COTTON
F03	SILK
F01	TERELENE

- (i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.
- (ii) To display the details of all the GARMENTS, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive of both the dates).
- (iii) To display the average PRICE of all the GARMENTS. Which are made up of FABRIC with FCODE as F03.
- (iv) To display FABRIC wise highest and lowest price of GARMENTS from GARMENT table. (Display FCODE of each GARMENT along with highest and lowest price.)
- (b) Write a command to remove the records of the garments whose READYDATE is after DEC-2008.
29. Write a user defined function change(L) to accept a list of numbers and replace the number in the list with its factorial.
- Example :**
 Input : [3,4,5,6,7]
 Output: [6, 24, 120, 720, 5040]

30. Suppose STACK is allocated 6 memory locations and initially STACK is empty (Top = 0). Given the output of the program segment:

```

AAA = 4
BBB = 6
Push (STACK, AAA)
Push (STACK, 4)
Push (STACK, BBB +2)
Push (STACK, AAA + BBB)

```

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SOLUTIONS

```

Push (STACK, 10)
while (Top>0):
    Element = STACK.Pop( )
    print(Element)

```

or

Consider the following operations are done on a stack. What will be the final status of the stack after all the operations are performed.

- | | | |
|----------------|-----------------|--------------|
| (a) Push(True) | (b) Push(False) | (c) Push(10) |
| (d) Pop() | (e) Push(50) | (f) Push(70) |
| (g) Pop() | (h) Pop() | |

Section D

- 31.** Granuda consultants are setting up a secured network for their office campus at Faridabad for their day-to-day office and web based activities. They are planning to have connectivity between 3 buildings and the head office situated in Kolkata.

Answer the questions (i) to (v) after going through the building positions in the campus and other details, which are given below:

Distance between various buildings	
Building RAVI to Building JAMUNA	120 m
Building RAVI to Building GANGA	50 m
Building GANGA to Building JAMUNA	65 m
Faridabad Campus to Head Office	1460 km

Number of computers	
Building RAVI	25
Building JAMUNA	150
Building GANGA	51
Head Office	10

- (i) Suggest the most suitable place (i.e. block) to house the server of this organisation. Also, give a reason to justify your suggested location.
 - (ii) Suggest a cable layout of connections between the building inside the campus.
 - (iii) Suggest the placement of the following devices with justification:

(a) Switch	(b) Repeater
------------	--------------
 - (iv) The organisation is planning to provide a high speed link with its head office situated in the Kolkata using a wired connection. Which of the following cable will be most suitable for this job?

(a) Optical fibre	(b) Co-axial cable
(c) Ethernet cable	
 - (v) Consultancy is planning to connect its office in Faridabad which is more than 10 km from Head office. Which type of network will be formed?
- 32.** (a) The code given below will give an error on execution. Identify the type of the error and modify the code to handle such type of an error.

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SOLUTIONS

```
x = int(input("Enter the value of
              x : "))
y = int(input("Enter the value of
              y : "))
z = x/y
print ("The value of z : ", z)
```

- (b) Note the following to establish the connection between Python and MySQL:

A resultset is extracted from the database using the cursor object (that has been already created) by giving the following statement.

```
Mydata=cursor.fetchone( )
```

- (i) How many records will be returned by fetchone() method?
(ii) What will be the datatype of Mydata object after the given command is executed?

or

- (a) Predict the output :

```
str = "Python Program"
def sTringoutput(str):
    print(str[3:5])
    print(str[-10])
    print(str[5:])
    print(str[-28])
```

- (b) Define fetchmany([size]). How does fetchone() method differ from fetchall() method?

33. What are the advantages of CSV files?

Write a python program using following functions to :

A file "teacher.csv" contains a city, teacher name and Salamount.

- (a) Search() : Search and print all rows where city is "delhi".

Sample "teacher.csv" :

City	Teacher Name	Salamount
Delhi,	Anil Sharma,	10000
Pune,	Mr Dua,	20000
Delhi,	Mr Das,	25000

- (b) Searchfromfile() : From the file "teacher.csv" print all rows where teacher name is "Anil".

or

What are the Disadvantages of CSV files?

Write a program using functions :

- (a) addTransaction() : To append bank transactions of following structure to "bank.csv"

```
TranID  TranDate  Amount  Type
```

- (b) getTran() : To display those transactions whose type is "Deposit".

Section E

34. Consider the following table Student:

Table : Student				
AdmNo	RollNo	Name	Class	Marks
2715	1	Ram	12	90

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SOLUTIONS

2816	2	Shyam	11	95
2404	3	Ajay	10	92
2917	4	Tarun	12	94

(i) Can we make Class as the Primary key of the table?

(ii) What is the cardinality of the table?

(iii) Write statements to :

(a) Display the average Marks .

(b) Display the different Classes .

or (Option for part (iii) only)

Write statements to :

(a) Change the data type of Marks column so that it can take fractional values upto 2 decimals .

(b) Increase width of Name column to varchar(50).

35. The code given below opens a binary file and writes records of customer's roomid, Name and days of stay . Some of the codes are missing .Write codes to fill up the blanks :

```
import..... # Blank1
hotellst=[]
cname=""
days=0.0
roomid=0
ans='y'
f=open("hotel.dat", "wb")
print("Welcome to my Hotel ")
while ans== 'y':
    roomid=input("Enter Roomld :")
    cname=input("Enter Customer name
                :")
    days=float(input("Enter days of
                    stay :"))
    hotellst=[....., ....., .....]
    # Blank2 To create the record to
    be written .....# Blank3 To
    write the data to the binary file.
    ans=input("Continue(y/n) ")
f.close()
```

(i) Write the missing code for Blank1.

(ii) Write the missing code for Blank2.

(iii) Write the missing code for Blank3.

END

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SOLUTIONS

Sample Paper 5
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. _____ command modifies or change the existing records in a table.
(a) UPDATE (b) CHANGE
(c) ALTER (d) MODIFY
2. Which of the following operator cannot be used with string data type?
(a) + (b) in
(c) * (d) /
3. Which of the following is a category of SQL commands?
(a) DDL (b) TCL
(c) DML (d) All of these
4. What is the output of the following code?

```
num = 4 + float (7)/int (2.0)  
print ("num =", num)
```


(a) num = 7.5 (b) 7.5
(c) num : 7.5 (d) Error
5. Given : s= "ComputerExam". What will be the output of

```
print (s[2]+s[8]+s[1:51]) ?
```


(a) mEOMUU (b) mEompu
(c) mEomPU (d) MEompu
6. State True or False
Digits are one of the parts of the Python character set
7. The clause to arrange the data of a column in descending order is
(a) DESC (b) GROUP BY
(c) LIKE (d) ASC

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SOLUTIONS

8. Which of the following are the most obvious kind of constants?
(a) Keywords (b) Literals
(c) Variables (d) Identifiers
9. Which of the following types of files will need the pickle module for working on it ?
(a) Binary files (b) Text files
(c) CSV files (d) All of these
10. In the following code, which lines will give error? (Assume the lines are numbered starting from 1.)
- ```
mul=3
value=10
for i in range (1, 6, 1):
 if (value % mul = 0):
 print (value * multiply)
 else
 print (value + multiply)
```
- (a) 4,5  
(b) 4,5,6  
(c) 4,5,6,7  
(d) No errors
11. There can be \_\_\_\_ foreign keys in a relation.  
(a) 2 (b) 3  
(c) 1 (d) Multiple
12. The \_\_\_\_ clause with the COUNT() function counts only the unique values in an attribute.  
(a) UNIQUE (b) HAVING  
(c) DISTINCT (d) LIKE
13. User can write Python script using  
(a) MySQL.connector library (b) SQL.connect library  
(c) MySQL.connect library (d) None of these
14. \_\_\_\_ is a protocol used for remote login.  
(a) HTIT (b) PPP  
(c) IRCP (d) Telnet
15. Which of the following functions will read lines of a text file as list elements.  
(a) read() (b) get()  
(c) readline() (d) readlines()
16. Which of the following will be the output of the statement given below?  
`print ([12, 34, 56, 78, 90].pop())`  
(a) 78 (b) 90  
(c) 12 (d) 12,34,56,78,90

**Direction (Q.Nos. 17-18) are Assertion and Reason based questions.**

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**SOLUTIONS**

17. Assertion (A) In a cross join the number of records in the output will be the maximum.  
Reason (R) A cross join is also called a Cartesian product.
- (a) Both A and R are true and R is the correct explanation for A.
  - (b) Both A and R are true but R is not the correct explanation for A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.
18. Assertion (A) A file that is opened using the open() function may not specify the mode of opening it.  
Reason (R) If the mode is not specified, the read mode is used by default..
- (a) Both A and R are true and R is the correct explanation for A.
  - (b) Both A and R are true but R is not the correct explanation for A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.

## Section B

19. Observe the given list and find the answer of questions that follows.

```
list1 = [23, 45, 63, 'Hello', 20
 'World', 15, 18]
```

- (i) list1[-3]                      (ii) list1[3]

20. What is the advantage of using switch over hub?

or

Write some benefits of networking.

21. (a) Find the output

```
L = [10, 19, 45, 77, 10, 22, 2]
```

- (i) L [3 : 5]                      (ii) L [: : -2]

- (b) Find the error(s).

```
L1 = [7, 2, 3, 4]
```

```
L2 = L1 + 2
```

```
L3 = L1 * 2
```

```
L = L1.pop(7)
```

22. What do you understand by RDMS?

23. (a) Write the full forms of :

- (i) POP                      (ii) HTTP

- (b) Differentiate between the terms Internet and Intranet.

24. Predict the output

```
dic = {'a':1, 'b':2, 'c':3, 'd':4}
print(dic)
if 'a' in dic :
 del dic['a']
print(dic)
```

or

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**SOLUTIONS**



Distinguish between tuple and list.

25. Explain the concept of candidate keys with the help of an appropriate example.

or

Observe the following table carefully and write the names of the most appropriate columns, which can be considered as (i) candidate keys and (ii) primary key.

| Table: Product |           |        |           |        |
|----------------|-----------|--------|-----------|--------|
| CID            | CNAME     | AMOUNT | COUNTRY   | ITEM   |
| 101            | ALLE      | 100000 | JMEKA     | SHOES  |
| 111            | BEN       | 20000  | FRANCE    | HELMET |
| 110            | RIKI      | 25000  | AMERICA   | BAG    |
| 011            | BRETT LEE | 105000 | AUSTRALIA | BAT    |

## Section C

26. (a) Consider the tables Travel and Train given below.

| Table : Travel |        |       |     |      |
|----------------|--------|-------|-----|------|
| Tcno           | Pname  | Class | TId | Amt  |
| 1              | Rahul  | AC    | T1  | 2500 |
| 2              | Sujit  | SL    | T2  | 4500 |
| 3              | Ravi   | AC    | T1  | 6000 |
| 4              | Ankita | AC    | T3  | 1800 |

| Table : Train |                 |
|---------------|-----------------|
| TId           | Tname           |
| T1            | Rajdhani        |
| T2            | Himgiri Exp     |
| T3            | Darjeeling Mail |

Write the command to display the passenger names and the train names by which they are travelling for all passengers travelling by “Mail” trains.

- (b) Considering the tables Train and Travel given above write commands for the following :

- Display passenger names , corresponding train names and amounts for records where amount >5000.
- Increase amount of passengers by 20% who are travelling by ‘AC’
- Display a cross join of the two tables.
- Remove records of passengers who are travelling by “Rajdhani”.

27. A binary file “emp.dat” contains records of employees as per following structure:

|     |         |        |
|-----|---------|--------|
| Eno | Ename   | Salary |
| 1   | Mr. Raj | 85000  |
| ⋮   |         |        |

Write a program in Python to open the Binary file “emp.dat” and display only those records where the employee salary is greater than 75000.

or

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**SOLUTIONS**

Write a program to read the content from a text file “status.txt”, count and display the total number of lines and blank spaces present in it. e.g. if the “status.txt” file contains the following lines:

Welcome to your one-step solutions for all your study, practice and assessment needs for various competitive & recruitment examinations and school segment. We have been working tirelessly for over a decade to make sure that you have best in class study resources because you deserve SUCCESS AND NOTHING LESS...

The output will be:

The status file contents are

Total lines in file are: 4

Total spaces in file are: 43

28. (a) Consider the following tables SENDER and RECIPIENT. Write SQL commands for the statements (i) to (iv).

| TABLE: SENDER |            |                   |            |
|---------------|------------|-------------------|------------|
| SenderID      | SenderName | SenderAddress     | SenderCity |
| ND01          | R Jain     | 2, ABC Appts      | New Delhi  |
| MU02          | H Sinha    | 12, Newtown       | Mumbai     |
| MU15          | S Jha      | 27/A, Park Street | Mumbai     |
| ND50          | T Prasad   | 122-K, SDA        | New Delhi  |

| TABLE: RECIPIENT |          |            |                       |           |
|------------------|----------|------------|-----------------------|-----------|
| RecID            | SenderID | RecName    | RecAddress            | RecCity   |
| KO05             | ND01     | R Bajpayee | 5, Central Avenue     | Kolkata   |
| ND08             | MU02     | S Mahajan  | 116, A Vihar          | New Delhi |
| MU19             | ND01     | H Singh    | 2A, Andheri East      | Mumbai    |
| MU32             | MU15     | P K Swamy  | B5, C S Terminus      | Mumbai    |
| ND48             | ND50     | S Tripathi | 13, B1 D, Mayur Vihar | New Delhi |

- To display the names of all Senders from Mumbai.
  - To display the RecID, SenderName, SenderAddress, RecName, RecAddress for every Recipient.
  - To display Recipient details in ascending order of RecName.
  - To display number of Recipients from each City.
- (b) Display the Sender name and corresponding Recipient name from the tables where sender is from “NEW DELHI” and recipient is from “KOLKATA”.
29. Write a user defined function change(L) to accept a list of numbers and replace the numbers in the list with their sum of digits.
- Example
- Input : [32,142,215,26,7]
- Output : [5, 7 , 8 , 8, 8,7]
30. Write Push (contents) and Pop() methods in Python to add numbers and remove numbers considering them to act as Push and Pop operations of stack.

or

Find the final contents of a stack on which the following operations are done.

1. Push(100)
2. Push(200)
3. Push(50)
4. Push(50)

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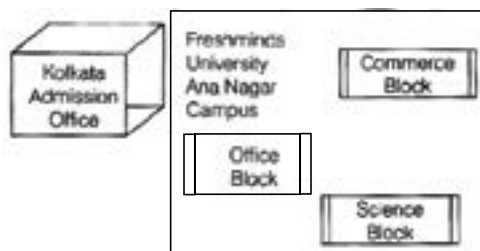
**SOLUTIONS**

5. Pop()                      6. Push()  
 7. Pop(2)                    8. Pop()

## Section D

31. Freshminds University of India is starting its first campus in Ana Nagar of South India with its centre admission office in Kolkata. The university has three major blocks comprising of Office block, Science block and Commerce block is in 5 km area campus.

As a network expert, you need to suggest the network plan as per (i) to (v) to the authorities keeping in mind the distance and other given parameters.



Expected wire distance between various locations.

|                                              |        |
|----------------------------------------------|--------|
| Office Block to Science Block                | 90 m   |
| Office Block to Commerce Block               | 80 m   |
| Science Block to Commerce Block              | 15 m   |
| Kolkata Admission Office to Ana Nagar Campus | 450 km |

Expected number of computers to be installed at various locations in the university are as follows:

|                          |     |
|--------------------------|-----|
| Office Block             | 10  |
| Science Block            | 140 |
| Commerce Block           | 30  |
| Kolkata Admission Office | 8   |

- Suggest the authorities, the cable layout amongst various blocks inside university campus for connecting the blocks.
  - Suggest the most suitable place (i.e. block) to house the server for this university with a suitable reason.
  - Suggest an efficient device from the following to be installed in each of the block to connect all the computers.
    - Modem
    - Switch
    - Gateway
  - Suggest a suitable topology to connect the computers in each building.
  - University is planning to connect its campus in Kolkata which is more than 100 km. Which type of network will be formed?
32. (a) Underline the syntax errors in the following program
- ```
x = int(input("Enter first number:"))
y = int(input("Enter second number:"))
z = int(input("Enter third number:"))
a = x+ b+ z
print ("Result = ", b)
```

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SOLUTIONS

(b) Write the code to create the following table Student with the following fields

RollNo	FirstName	LastName	Address	ContactNo
ContactNo	Marks	Course	Rank	

In the table, Rank should be Good, Best, Bad, Worst, Average.

or

(a) Differentiate between a logical error and syntax error. Also, give suitable examples of each in Python.

(b) What is the use of fetchone() method? Write an example code to fetch a single record from a database.

Note :

Database : PythonDB

Table : Student

Host : localhost

UsedID : root

Password : arihant

33. Which module is used to operate on CSV file?

Write a python program with following functions :

(a) addcsv():

File old.csv has come from branch in Pune and it needs to be added to file “updated.csv” which has data for all branches. Write the code in the function to perform the same.

(b) convertcsv() :

A file old.csv has come with separator ‘:’ but your system can only read ‘;’ Write a program to convert to “converted.csv” file. Write the function to change the separator of the file.

or

CSV files are opened with which argument to suppress EOL translation. Write a python program to perform the following using functions as follows :

(a) copytocsv() :

A CSV file “marks.csv” has name, class and marks separated by comma. Write the Python function to copy only the name and class to another CSV file “class.csv”.

(b) copyselected() :

The CSV file “marks.csv” which has name, class and marks separated by comma. Write the Python function to copy only rows of students of class 2 to another CSV file “class.csv”.

Section E

34. Consider the following table Person

P_Id	LastName	First Name	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes
2	Svendson	Tove	Borgvn 23	Sandnes
3	Pettersen	Kari	Storgt 20	Stavanger
4	Nilsen	Johan	Bakken 2	Stavanger

(i) What should be the constraint(s) of the P_Id column?

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SOLUTIONS

(ii) If 3 columns are added to the table , what will be its degree?

(iii) Write statements to :

(a) Display the Unique Cities.

(b) Display Firstnames of people who do not have a address.

or (Option for part (iii) only)

Write appropriate data types to store the following :

(a) Amounts carrying values with decimal.

(b) Joining dates.

35. The code given below reads a text file and displays those words that begin with an uppercase vowel and end with a lowercase vowel . Some of the codes are missing .Write codes to fill up the blanks.

```
f=open("emp.txt")
filedata=f.read()
count=0
print(filedata)
data=filedata.split(' ')
for..... in data : #Blank1
    if words[-1] in "aeiou" and ...in "AEIOU": # Blank2
        print(.....) # Blank3
f.close()
```

(i) Write the missing code for Blank1.

(ii) Write the missing code for Blank2.

(iii) Write the missing code for Blank3.

END

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SOLUTIONS

Sample Paper 6
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. The output of the code will be :

```
L=[6,7,8,9,10]  
print(L[2:20])
```

(a) [8, 9, 10]	(b) []
(c) Error	(d) [6,7,8,9,10]
2. The random function returns a random value between

(a) 1 and 10	(b) 0 and 10
(c) 0 and 1	(d) 1 and 100
3. To read three characters from a file object f, we use.....

(a) f.read(3)	(b) f.read()
(c) f.readline()	(d) f.readlines()
4. State True or False
“The pop() method removes and displays the last element of a list.”
5.are drawn using certain special purpose symbols.

(a) Algorithm	(b) Pseudocode
(c) Flowchart	(d) Decision table
6. To arrange a table in descending order of field Salary the clause to be used is

(a) Order by Salary	(b) Order by Salary Desc
(c) Arrange by SalaryDesc	(d) Arrange by Salary
7. The BETWEEN clause can not be used for

(a) Integer Fields	(b) Varchar Fields
(c) Date Fields	(d) None of these

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SOLUTIONS

8. The constraint that ensures that the field does not get any NULL values is
(a) NULL (b) PRIMARY KEY
(c) CHECK (d) NOT NULL
9. is and is not are _____ Operators.
(a) Membership (b) Identity
(c) Logical (d) Comparison
10. What will the following code display?
name = "Neha"
type (name)
(a) Invalid function <type>
(b) <class 'str'>
(c) <class 'int'>
(d) <class 'float'>
11. Which of the following is not required while specifying the connection string in database connection?
(a) Host (b) Table name
(c) Username (d) Password
12. The ALTER TABLE command belongs to.....category
(a) DML (b) TCL
(c) DDL (d) DCL
13. Which of the following are possible relational operations?
(a) Join (b) Selection
(c) Cartesian product (d) All of these
14. Given a tuple tup = (20,50,10,60,30). The statement append(90) returns
(a) (20,50,10,60,30,90) (b) (90)
(c) Error (d) (30,90)
15. To open a text file for adding records keeping the existing records the mode should be
(a) ab (b) xb
(c) rb (d) w+
16. A device that connects two dissimilar networks is
(a) Modem (b) Repeater
(c) Bridge (d) Gateway

Directions : (Q.Nos. 17-18) are Assertion and Reason based questions.

17. Assertion (A) Binary files are processed faster than text files.
Reasoning (R) They are written in Binary format and are more close to the computer.
(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.

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18. Assertion (A) A function that is neither built in nor modular must be defined.

Reason (R) The code of built in and modular functions are available for the Python compiler , but if the function is not defined anywhere the compiler cannot get the code.

- (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.

Section B

19. Observe the code given below and find the output.

```
s="OceanView"  
print(s[8] +s[2:] +str(len(s)))
```

20. What is the purpose of switch in a network?

or

Write names of few network devices.

21. (a) What is the output of below questions?

```
l1 = [23, 45, 19, 77, 10, 22]
```

(i) `l1.sort()`

(ii) `max(l1)`

(b) Find error in definition of the function given.

```
def finderrors(x=20,y)  
    print(x+y*2)
```

22. List some commonly used DBMS software packages.

23. (a) Write the full forms of

(i) HTML

(ii) HTTPs

(b) Write any two advantages of tree topology.

24. What output will the following code produce?

```
empdict={'Eno':[1,2,3,4], 'Ename' : ['Raj', 'Seema', 'John', 'Smith'],  
'Sal':[10000, 20000, 30000, 40000]}  
print(empdict['Ename'][0], empdict['Sal'][0])
```

or

Write any two differences between Dictionary and Tuple.

25. Mention atleast three limitations of DBMS.

or

What are primary and alternate key in a database? Give suitable example to explain each.

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SOLUTIONS

SECTION C

26. Consider the tables Hotel and Room given below :

Table : Hotel				
TId	CName	RoomId	DtofArrival	Charges
T1	Ritesh	R1	2016-09-09	1800
T2	Sumana	R2	2020-08-01	2000
T3	Abhi	R3	1995-04-05	3000
T4	Ram	R1	1994-02-02	2500
T5	Nitin	R2	NULL	7000

Table : Room		
RoomID	RoomType	FLoor
R1	AC	First
R2	Deluxe	Second
R3	General	Second

- (a) Write a command to display the customer names and the types of rooms in which they are staying.
- (b) With respect to the tables given above, write SQL commands for the following.
 - (i) Create the table hotel and insert the 1st record
 - (ii) Display the details of customers who have arrived after 01-05-2005
 - (iii) Display names and room types of customers whose charges are between 2000 and 3000.
 - (iv) Display Names of customers who are staying in “AC” rooms”

27. A binary file “data.dat” contains records of students as per following structure :

Ano	Sname	Marks
1	Raj	850
:		
:		

Write a Program in Python to search for a student whose number/id is input by the user. If not found appropriate message should be displayed.

or

Write a program with method countand () to count the word ‘and’ or And’ as an independent word in a text file “status.txt”. e.g. if the content of the file “status. txt” is as follows:

Welcome to your one-step solutions for all your study, practice and assessment needs for various competitive & recruitment examinations and school segment. We have been working tirelessly for over a decade to make sure that you have best in class study resources because you deserve SUCCESS AND NOTHING LESS...

Then the output of the program should be: Count of _and_ in file is/are: 3

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SOLUTIONS

28. (a) Write the SQL commands for (i) to (iv) on the basis of the table HOSPITAL

TABLE: HOSPITAL						
No	Name	Age	Department	Date-ofadm	Cha-rges	Sex
1	Sandeep	65	Surgery	23/02/98	300	M
2	Ravine	24	Orthopaedic	20/01/98	200	F
3	Karan	45	Orthopaedic	19/02/98	200	M
4	Tarun	12	Surgery	01/01/98	300	M
5	Zubin	36	ENT	12/01/98	250	M
6	Ketaki	16	ENT	24/02/98	300	F
7	Ankita	29	Cardiology	20/02/98	800	F
8	Zareen	45	Gynaecology	22/02/98	300	F
9	Kush	19	Cardiology	13/01/98	800	M
10	Shailya	31	Nuclear Medicine	19/02/98	400	M

(i) To show all information about the patients of Cardiology Department.

(ii) To list the name of female patients, who are in Orthopaedic Department.

(iii) To list names of all patients with their date of admission in ascending order.

(iv) To display Patient's Name, Charges, Age for male patients only.

(b) Write the command to view all the tables in database.

29. Write user defined functions factors(num) and factorial(num) to find the factors and factorial of a number accepted from the user and passed to the functions from main function.

30. Write the Push operation of stack containing person names. Notice that the name should only accept characters, spaces and period(.) except digits. Assume that Pname is a class instance attribute.

or

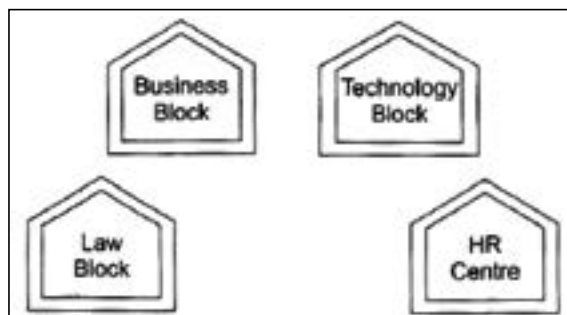
Find the final contents of a stack that encounters the following tokens.

Assume that an operand is pushed to stack and a binary operator pops two operands from stack and pushes the result to the stack.

45, 30, +, 50, 80, +, +

Section D

31. Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has three academic blocks and one human resource Centre as shown in the diagram below:



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SOLUTIONS

Centre to Centre distance between various blocks/Centre is as follows:

Law Block to Business Block	40 m
Law Block to Technology Block	80 m
Law Block to HR Centre	105 m
Business Block to Technology Block	30 m
Business Block to HR Centre	35 m
Technology Block to HR Centre	15 m

Number of computers in each of the blocks/centre are as follows:

Law Block	15
Technology Block	40
HR Centre	115
Business Block	25

- Suggest the most suitable place (i.e. block/Centre) to install the server of this university with a suitable reason.
- Suggest an ideal layout for connecting these block/Centre for a wired connectivity.
- Which device you will suggest to be placed/installed in each of these blocks/Centre to efficiently connect all the computers with in these blocks/Centre ?
- The university is planning to connect its admission office in the closest big city, which is more than 250 km from university, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.
- Expand the following
LAN
WAN

32. (a) Underline the errors in the following code and write the correct code :

```
while s>0
    if a%2=0
        print(a%2)
    elseif a%3=0 then
        print(a%3)
```

- (b) What is database connectivity? How to create a connection object?

or

- Differentiate between identifier and keyword.
- What conditions or terms are included by BD-API?

33. What does csv writer() function do?

Write a python program for operating on a csv file “people.csv” using following functions :

- (a) addPeople() :To input details of people and add them to a csv file “people.csv” without removing the previous records. The record structure is as follows :

AdhrNo Name City Age

The file should store only those people whose age is greater than and equal to 18.

- (b) getPeople() : To open the file “people.csv” and display records whose name starts with “P”

or

What is the use of writerow() function?

A file “Toys.csv” exists storing details of toys as per following structure :

ToyID Toyname Category Cost

Write a program in python with functions as follows

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- (a) addToy() : To append data of toys and store them to the file “Toys.csv” only if the Toy category is “Boys”. Also display the number of toys added.
- (b) showToys() : To open the file “Toys.csv” and display records of toys whose cost is above 1000.

Section E

34. Consider the following table Cab :

Table : Cab			
CabID	CabType	Nop	Rate
Cb1	Sedan	4	40
Cb2	Yellow Taxi	5	25
Cb3	Mini	3	30
Cb4	Micro	2	20

- (i) Which column qualifies to be the primary key?
- (ii) Write a command to display the fields of the table along with their types and sizes.
- (iii) Write statements to :
- Add a new column Driver varchar(30)
 - Change data type of Rate column to float(6,1).
- (Option for part (iii) only)
- To display the cab type whose rate is more than 25.
 - To display cab id and Number of passengers for cab sedan.
35. Riya wrote a program to search any string in text file “school”. Help her to execute the program successfully.
- ```
def check () :
 datafile = open (.....)
 found = input ("Enter any string to
 be searched : ")

 f = False
 for line in :
 if found in line :
 f =
 break
 return f
f = check ()
if (f ==) :
 print ("True")
else :
 print (.....)
```
- (i) Riya should open which file to search any string?
- (ii) Which value will assign to f in Line 7?
- (iii) Fill the blank in Line 5.

END

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**SOLUTIONS**

**Sample Paper 7**  
**Computer Science (083)**  
**CLASS XII 2023-24**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check this question paper contains 35 questions.
  2. The paper is divided into 4 Sections- A, B, C, D and E.
  3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
  4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
  5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
  6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
  7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
  8. All programming questions are to be answered using Python Language only.
- 

**Section A**

1. Which of the following functions write data to a binary file?  
(a) pickle() (b) writer()  
(c) load() (d) dump()
2. \_\_\_\_\_ can be create using cursor( ) method of connection object.  
(a) Cursor object (b) Cursor variable  
(c) Connect (d) None of these
3. \_\_\_\_\_ command displays the contents of a table.  
(a) DISPLAY (b) VIEW  
(c) SELECT (d) SHOW
4. State True or False  
Integer is a mutable data type in Python.
5. Identify the output of the following Python statement:  

```
b = 1
for a in range(1, 10, 2):
 b += a + 2
print(b)
```

  
(a) 31 (b) 33  
(c) 36 (d) 39
6. Which of the following Python function displays the memory id of a variable?  
(a) type() (b) str()  
(c) getid() (d) id()

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**SOLUTIONS**

7. Which of the following is an advantage of SQL?
- (a) High speed (b) Client/Server language  
(c) Easy to learn (d) All of these
8. Which of the following operator performs an integer division?
- (a) \* (b) //  
(c) / (d) \*\*
9. Predict the output of the following program:
- ```
a = 5
b = a = 15
c = (a < 15)
print ("a = ", a)
print ("b = ", b)
print ("c = ", c)
```
- (a) a=15
b=15 b=10
c=False c=True
- (b) a=15
- (c) a=15
b=None
c=False
- (d) None of these
10. Given s="AISSE@2023". What will be the output of `print(s[-1: :-1])`?
- (a) '3202@ESSIA' (b) 3
(c) AISSE (d) ESSIA
11. A primary key of a relation must be ____.
- (a) UNIQUE only (b) NOT NULL only
(c) Both UNIQUE and NOT NULL (d) Neither UNIQUE nor NOT NULL
12. The.....clause can group records on the basis of common values in a field.
- (a) AGGREGATE (b) GROUP
(c) GROUP BY (d) JOIN
13. The python function that adds a list at the end of another list is
- (a) join() (b) add()
(c) append() (d) extend()
14. Which of the following functions will read entire contents of a text file?
- (a) read() (b) readfull()
(c) readline() (d) readfile()
15. The cross join is also called
- (a) Merging (b) Cartesian product
(c) Natural join (d) Equi join

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16. _____ is the base protocol for all application protocols.
- (a) FTP (b) TCP/IP
(c) IRCP (d) Telnet

Direction : (Q.Nos. 17-18) are Assertion and Reason based questions.

17. Assertion (A) Pickling is a way to convey a Python object into character stream.
Reason (R) To perform pickling, the pickle module needs to be imported.
- (a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true but R is not the correct explanation for A.
(c) A is true but R is false.
(d) A is false but R is true. A.
18. Assertion (A) A recursive function does not require a loop.
Reason (R) A recursive function calls itself again and again until a certain condition is true.
- (a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true but R is not the correct explanation for A.
(c) A is true but R is false.
(d) A is false but R is true.

Section B

19. Observe the code given below and find the output :

```
s= "oceanview"  
count=0  
for a in s:  
    if a in "stuv":  
        count+=1  
print(count)
```

20. What is the difference between video conferencing and chat?

or

What is WWW?

21. (a) Given the following code :

```
d={ 'Bed':145000, 'Almirah':9000,  
    'Chair':1000}  
for v in d.keys():  
    if d[v]>100000:  
        d[v]- =10000  
print(d)
```

What will be the output of the print statement?

- (b) Write the value stored in the variable Num by each of the following statements.
- (i) Num = 2 * 3 - 4
(ii) Num = 2+3-1*3
(iii) Num = (2+3)*2

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SOLUTIONS

22. Explain database and DBMS in detail.

23. (a) Write the full forms of :

(i) RJ45 (ii) XML

(b) Write one advantages of Bus topology compared to Star and one advantage of star topology compared to Bus.

24. What output will the following code produce?

```
y=str(123)
x= "hello"*3
print(x,y)
x="hello" + "world"
y=len(x)
print(y,x)
```

or

Write function names for the following with respect to strings.

(i) To make the first letter of a string in capital

(ii) To find the index of the 1st occurrence of a string in another

25. What is DDL? Explain with its commands.

or

What is DML? Explain with its commands.

Section C

26. (a) Consider the following tables PERSON and ORDERS

Table : PERSON			
P_Id	Last_Name	First_Name	City
1	Sharma	Abhay	Mumbai
2	Gupta	Mohan	Delhi
3	Verma	Akhil	Mumbai

Table : ORDERS		
O_Id	Order_No	P_Id
1	10050	3
2	25000	3
3	5687	1
4	45000	1
5	35000	15

With respect to the tables given above write a command to display the Lastname, Firstname and corresponding order number arranged by Lastname.

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SOLUTIONS

(b) With respect to the table PAYMENTS given below, write, output of the following questions.

TABLE : PAYMENTS			
Empld	Emp_Name	Salary	Department
1	Ridhi	20000	D1
2	Rohit	25000	D2
3	Rakesh	20000	D2
4	Roshan	44000	D1
5	Rohini	15000	D3
6	Radha	14000	D1

- (i) To display the average of employees salary from PAYMENTS table.
- (ii) To count the total number of employees from PAYMENTS table Department wise
- (iii) To count distinct values of column Department from PAYMENTS table.
- (iv) To display department wise number of employees , but for only those departments where number of employees are more than 2.

27. Write a code in Python to open a Binary file “College.dat” containing records of students as per following structure:

Roll Name SemPercentage

The code should display only records of students from the file where the percentage is greater than 30.

or

Write a method countopen() to count and display the number of lines starting with the word ‘OPEN’ (including lower cases and upper cases) present in a text file “start. txt”.

e.g. If the file “start.txt” contains the following lines:

Get the data value to be deleted,

Open the file for reading from it.

Read the complete file into a list

Delete the data from the list

Open the file

Open same file for writing into it

Write the modified list into file.

Close the file.

The method should display

Total lines started with word ‘OPEN’ is/are: 3

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SOLUTIONS

28. (a) Write SQL commands from (i) to (iv) on the basis of the table INTERIORS given below

TABLE : INTERIORS					
No	ITEMNAME	TYPE	DATEOF-STOCK	PRICE	DISC-OUNT
1	Red rose	Double Bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double Bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15
11	White Wood	Double Bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/03	7000	10

(i) To show all information about the Sofa from the INTERIORS table.

(ii) To list the ITEMNAME, which are priced at more than 10000 from the INTERIORS table.

(iii) To list ITEMNAME and TYPE of those items, in which DATEOFSTOCK is before 22/01/02 from the INTERIORS table in descending order of ITEMNAME.

(iv) To insert a new row in the INTERIORS table with the following data

{14, 'TrueIndian', 'Office Table', '25/03/03', 15000, 20}

(b) Write the command to display the sum of prices of items of type "cot".

29. Write a user defined function to accept a string and check whether it is palindrome or not.

(A palindrome is a string that is same as its reverse)

30. Explain the traversal operation in a stack.

Write the algorithm for Traversal of a stack to display its contents.

You need not to write the actual code.

or

Find the final contents of a stack that encounters the following tokens.

Assume that an operand is pushed to stack and a binary operator pops two operands from stack and pushes the result to the stack.

7,11,*,80,+,50,+

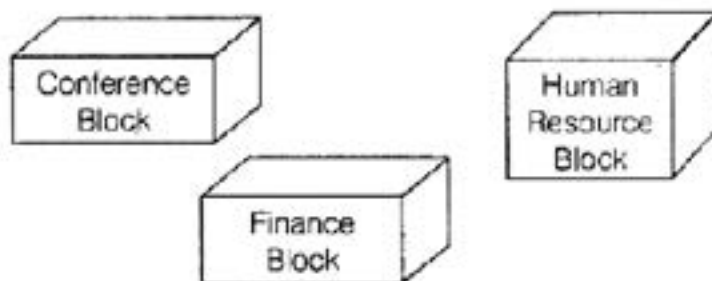
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Section D

31. Tech Up Corporation (TUC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest to them the best available solutions. Their queries are mentioned as (i) to (v) below.

Physical locations of the blocks of TUC



Block to block distances (in metre)

Block (From)	Block (To)	Distance
Human Resource	Conference	60
Human Resource	Finance	120
Conference	Finance	80

Expected number of computers to be installed in each block

Block	Computers
Human Resource	125
Finance	25
Conference	60

- What will the most appropriate block, where TUC should plan to install their server?
 - Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
 - Write names of different types of Modems.
 - Which of the following devices will be suggested by you to connect each computer in each of the buildings?
 - Gateway
 - Switch
 - Modem
 - Company is planning to connect its Block in Hyderabad which is more than 20 km. Which type of network will be formed?
32. (a) Underline the errors in the following code and write the correct code:
- ```
s= "WelcometoCS"
For a IN s :
 If a IN "aeiou" :
 print(a)
 else
 print("False")
```
- (b) Write a code in Python to update the class of a student to 12 whose roll number is 22. The table structure is as follows :
- | RollNo | Name | Class | Perc |
|--------|------|-------|------|
|--------|------|-------|------|

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**SOLUTIONS**

Note :

Database : PythonDB

Table : Student

Host : localhost

UserId : root

Password : arihant

**or**

- (a) Write the output of the following function

```
def showOutput():
 num=4 + float(7)/int(2.0)
 print("num =", num)
```

- (b) Write a code in Python to delete the record of a student whose rollno is 33. The table structure is as follows

RollNo    Name    Class    Perc

Note :

Database : PythonDB

Table : Student

Host : localhost

UserId : root

Password : arihant

- 33.** What is the use of `writerows()` function for CSV files?

A binary file "Hotel.dat" exists storing details of hotel customers as per following structure:

RoomId   CustomerName   Days

Write a program in python for adding and displaying records from the binary file using following functions

- (a) `Reserve()` : To add data of customers to the binary file.  
 (b) `ShowReservations()` : To open the file "Hotel.dat" and display all the records.

**or**

What is `csv.reader()` function?

A binary file "Telephone.dat" exists storing details of BSNL customers as per following structure:

PhoneNo   CustomerName   ConnType

Write a program in python for adding and displaying record count from the binary file using following functions

- (a) `NewCustomer()` : To add data of customers to the binary file "Telephone.dat".  
 Note : The existing connection data should be preserved.  
 (b) `PrintConnections()` : To open the file "Telephone.dat" and display the connections and number of connections.

## Section E

- 34.** Consider the following table

| TABLE : INTERIORS |              |            |              |       |            |
|-------------------|--------------|------------|--------------|-------|------------|
| No                | ITEMNAME     | TYPE       | DATEOF-STOCK | PRICE | DIS-CO-UNT |
| 1                 | Red rose     | Double Bed | 23/02/02     | 32000 | 15         |
| 2                 | Soft touch   | Baby cot   | 20/01/02     | 9000  | 10         |
| 3                 | Jerry's home | Baby cot   | 19/02/02     | 8500  | 10         |

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**SOLUTIONS**

- (i) What should be the data type for the DATEOFSTOCK column?
- (ii) Write a command to add a new record as follows :  
4, "Morris", "Sofa Set"  
Rest of the field values are not given
- (iii) Write statements to :
- Write a command to display only the Column ITEMNAME, Net Amount(PRICE-DISCOUNT)
  - Display only ITEMNAME and Discount column.  
(Option for part (iii) only)
  - Which clause is to be used to search non blank values in the table?
  - Which command will be used to make the "No" column as the primary key?
35. A program in python to modify records of a binary file "hotel.dat" using random access. The program would accept the room id , search the record by random access and display. It will then accept the new data and modify the file. The file structure is :
- | RoomId | Customer Name | Days |
|--------|---------------|------|
|--------|---------------|------|
- ```
import pickle
lst=[]
f=open("hotel.dat", "rb+")
ans='y'
while ans=='y':
    r=int(input("Enter roomid to
                modify :"))

    lst=pickle.load(f)
    size=f.tell()
    f.seek(0)
    f.seek((r-1)*size)
    lst=pickle.load(f)
    print("old record ")
    print("Room Id :", lst[0])
    print("Customer :", lst[1])
    print("Days :", lst[2])
    f.seek(0)
    ... .. # Statement 1
    print("Enter new record ")
    nm=input("Enter, customer name
              :")

    days=input("Enter days :")
    rs=str(r)
    lst=[rs,nm,days]
    pickle.dump(lst,f)
    ans=input("Modify another (y/n)")
f.close()
```
- (i) What type of data is returned by the load() method?
- (ii) Which method closes a binary file?
- (iii) What will be inserted in statement 1?

END

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SOLUTIONS

Sample Paper 8
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours**Max. Marks: 70**

General Instructions:

1. Please check this question paper contains 35 questions.
2. The paper is divided into 4 Sections- A, B, C, D and E.
3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
8. All programming questions are to be answered using Python Language only.

Section A

- What is the output of the following code?

```
>>> a = 10  
>>> b = 2  
>>> print("Output is", (a+10*2+b))
```

(a) Output is 22 (b) Output is 32
(c) Output is None (d) None of these
- The.....mode opens a file for both reading and writing.
(a) wr (b) rw
(c) r+ (d) a+
- Give the output for the following program segment given below.

```
for i in range (-5,-7,-1):  
    print (i + 1)
```

(a) -7,-6,-5 (b) -5,-6,-7
(c) No output (d) Error
- For readline(), a line is terminated by
(a) '\n' (b) EOF
(c) Either (a) or (b) (d) None of these
- The join operation can join.....tables.
(a) 1 (b) 2
(c) 3 (d) Multiple
- A table can have maximum.....primary key(s).
(a) 1 (b) 2
(c) 3 (d) Many

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SOLUTIONS

7. State True or False
“A tuple is an Editable data store”.
8. Which comments start with # symbol?
(a) Double line (b) Multi-line
(c) Single line (d) All of these
9. A table needs to restrict Salary column values to more than 50000. The constraint that has to be used is
(a) NULL (b) PRIMARY KEY
(c) CHECK (d) NOT NULL
10. To insert a record from Python to a mysql database the.....function needs to be executed.
(a) execute() (b) executeUpdate()
(c) executeQuery() (d) None of these
11. You can repeat the elements of the tuple using which operator?
(a) * (b) +
(c) ** (d) %
12. A table can be sorted by.....fields.
(a) 1 (b) 2
(c) More than 2 (d) None of these
13. A device that connects the network cable to the NIC is
(a) RJ45 (b) Repeater
(c) Hub (d) Switch
14. Which index number is used to represent last character of string?
(a) - 1 (b) 1
(c) 0 (d) n - 1
15. What will be the output of the following code?
a, b = 10, 5
x, y = a + b, b - 2
z = x - y
print ("x:", x, "y:", y, "z:", z)
(a) x: 16 y:3 z:20 (b) x: 15 y:3 z:20
(c) x: 16 y:3 z:12 (d) x: 15 y:3 z:12
16. The.....clause groups records by common values of a column.
(a) BETWEEN (b) ORDER BY
(c) HAVING (d) GROUP BY

Directions (Q. Nos. 17-18) are Assertion and Reason based questions.

17. Assertion (A) Default parameters to a function are not compulsory but are a good practice to specify.
Reason (R) If default parameters are specified the formal parameters will take the default values , if any of the actual parameters are not passed.
(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.

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SOLUTIONS

18. Assertion (A) A recursive function requires a base condition.

Reason (R) The base condition is the one that makes the function exit at a point.

- (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.

Section B

19. Predict the output.

- (i) `'wonders'.center(12, '*')`
- (ii) `'wonders25'.isalnum()`

20. Identify the types of networks formed in the following cases :

- (a) Two friends sharing files between a distance of 1000 km.
- (b) A device transmitting voice to stations within a distance of 30 km.

or

Write names of protocols used in following cases :

- (a) A network user downloading a photograph from a server
- (b) Two friends chatting over the web.

21. (a) Given the following code :

```
str1 = input ("Enter the string:")
final = ""
for i in range(len(str1)):
    if (i%2 == 0):
        final = final + str1[i]
print("Modified string is : ",
      final)
```

What is the above code doing?

(b) Consider the following list and answer the below questions.

```
l = [6, 9, 8, 'Hi', 'Hello', 45,
     23, 'New']
```

- (i) `l[4:]`
- (ii) `l[-4]`
- (iii) `l[2:5]`
- (iv) `'World' in l`

22. Write few advantages of SQL.

23. (a) Identify whether the following address is a valid IP address or not 256.200.192.1

(b) What is the difference between domain name and IP address?

24. Distinguish between tuple and list.

or

How can you add following data in empty dictionary?

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SOLUTIONS

Keys	Values
A	One
B	Two
C	Three
D	Four

25. What is equi join ? Explain with an example.

or

Identify which of the functions given below are aggregate functions.

COUNT() , LEFT() , RIGHT() , MAX() , AVG() , TRIM()

Section C

26. (a) Consider the tables EMP and SALGRADE storing details of employees and their salaries.

Table: EMP			
empno	ename	sal	date
110	Priya	7000	11-11-2010
111	Seema	14000	15-02-2014
151	Sachin	30000	18-04-2015
142	Deepa	25000	20-05-2015

Table : SALGRADE				
empno	city	lowsal	hisal	grade
110	Delhi	5000	10000	2
111	NCR	11000	13000	1
142	Meerut	10000	20000	5

With respect to the tables given above write a command to display the Employee names and the corresponding cities.

(b) With respect to the tables given above , write commands for the following :

- To display the average salaries of all employees who are not from Delhi.
- To display, maximum salary from the EMP table among employees whose date is after “2014”
- To find the count of employees who are from “Delhi”
- To display each employee’s name and Grade.

27. Write a method Filterwords() to find and display words from a text file ‘NewsLetter.txt’ whose length is less than 4.

or

Write a method countAN() that checks the number of occurrence of “A” and “N” in a text file “Story.txt”.

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SOLUTIONS

28. (a) Given the following tables for a database LIBRARY

Write SQL commands (i) to (iv) with respect to the tables BOOKS and ISSUED

TABLE: BOOKS						
Book_Id	Book Name	Author_ Name	Publishers	Price	Type	Qty
F0001	The Tears	William Hopkins	First Publ	750	Fiction	10
F0002	Thunder bolts	Anna Roberts	First Publ	700	Fiction	5
T0001	My First C++	Brain & Brooke	EPB	250	Text	10
T0002	C++ Brainworks	A.W. Rossaine	TDH	325	Text	5
C0001	Fast Cook	Lata Kapoor	EPB	350	Cookery	8

TABLE : ISSUED	
Book_Id	Quantity_Issued
F0001	3
T0001	1
C0001	5

(i) To show Book name, Author name and Price of books of EPB Publishers.

(ii) To list the names from books of Fiction type.

(iii) To display the names and price of the books in descending order of their price.

(iv) To increase the price of all books of First Publ Publishers by 50.

(b) Write the command to remove all the records of the BOOKS table keeping the structure.

29. Write user defined function patterns (n) to display the following pattern for n lines , as per the number passed to the function. The number to be input in main() function.

Example :

Enter a number : 6

6

6 6

6 6 6

6 6 6 6

6 6 6 6 6

6 6 6 6 6 6

Enter a number : 7

7

7 7

7 7 7

7 7 7 7

7 7 7 7 7

7 7 7 7 7 7

7 7 7 7 7 7 7

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SOLUTIONS

30. A linear stack called status contains the following information :

Phone number of Employee

Name of Employee

Write the following methods to perform given operations on the stack status :

- (i) Push_element () To Push an object containing Phone number of Employee and Name of Employee into the stack.
- (ii) Pop_element () To Pop an object from the stack and to release the memory.

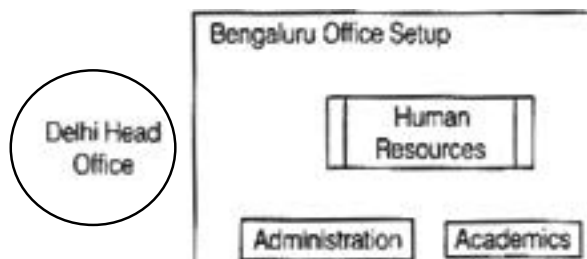
or

Write a function to pop an element from a stack “s” using a function stackpop().

Section D

31. G.R.K International Inc. is planning to connect its Bengaluru Office Setup with its Head Office in Delhi. The Bengaluru Office G.R.K. International Inc. is spread across an area of approx. 1 square kilometres consisting of 3 blocks. Human Resources, Academics and Administration. You as a network expert have to suggest answers to the questions (i) to (v) raised by them.

Note Keep the distances between blocks and number of computers in each block in mind, while providing them the solutions.



Shortest distances between various blocks

Human Resources to Administration	100 m
Human Resources to Academics	65 m
Academics to Administration	110 m
Delhi Head Office to Bengaluru Office Setup	2350 km

Number of computers installed at various blocks

Block	Number of Computers
Human Resources	155
Administration	20
Academics	100
Delhi Head Office	20

- (i) Suggest the most suitable block in the Bengaluru Office Setup to host the server. Give a suitable reason with your suggestion.
- (ii) Suggest the cable layout among the various blocks within the Bengaluru Office Setup for connecting the blocks.
- (iii) Suggest the placement of switch.

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SOLUTIONS

- (iv) Suggest the most suitable media to provide secure, fast and reliable data connectivity between Delhi Head Office and the Bengaluru Office Setup.
- (v) Expand the following
WAN
LAN

32. (a) Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 200 and 300 (both included).
- (b) Consider the table Faculty whose columns' name are
F_ID, Fname, Lname, Hire_date,
Salary, Course_name
Write the code to insert the following record into the above table.

101	Riya	Sharma	12-10-2004	35000	Java Advance
102	Kiyaan	Mishra	3-12-2010	28000	Data Structure

or

- (a) Which of the following are invalid, names and why?
- (i) PaidInterest (ii) S-num
 - (iii) Percent (iv) 123
- (b) What is the utility of fetchall() method? Write a code to fetch all the records of a Student table from PythonDB Database.
- Note :
- Host : localhost
- Database : PythonDB
- User : root
- Password: arihant
- Table : Student

33. Which file can be opened with notepad as well as MS Excel?

A CSV file "Garment.csv" file exists containing records of different types of garments as per following structure.

GarmentID Type Gender Cost

Write a python program to add and search records of garments from the csv file and display using the following functions :

- (a) AddGarment() : Function to input details of garments and store them to the file "Garment.csv", if the garment type is "cotton" or "silk".
- (b) ShowGarments() : To open the file " Garment.csv", display details and number of "silk".garments

or

What is with statement in Python?

A csv file "cricket.csv" exists to store data of cricketers as follows:

CID CricketerName Strikerate WorldRank

Write a program in python to add data of more cricketers along with the existing records . Also display the details of cricketers as per the condition given using the functions given:

- (a) AppendCricketer() : To accept data of cricketers and append them to the file "cricket.csv"
- (b) GetCricketers() : To open the file "Cricket.csv" and display number of cricketers whose world ranking is above 50.

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SOLUTIONS

Section E

34. Consider the following table

TABLE : PATIENTS						
No	Name	Age	Department	Dateofadm	Charges	Sex
1	Ketaki	16	ENT	24/02/98	300	F
2	Ankita	29	Cardiology	20/02/98	800	F
3	Zareen	45	Gynaecology	22/02/98	300	F
4	Kush	19	Cardiology	13/01/98	800	M
5	Shailya	31	Nuclear Medicine	19/02/98	400	M

- (i) What would be the width of Dateofadm field?
- (ii) Write commands to remove the records of “Cardiology” department.
- (iii) Write statements to :
- Display a report showing Name, charges and discount (15%) for all patients.
 - Display names of female patients .
- or (option for part (iii) only)
- Which function will find the total charges of all patients?
 - Name the constraint that will restrict duplicate values in Name column.

35. A user defined method to open a text file “para.txt” and display count of number of ‘c’ or ‘C’ and number of ‘e’ or ‘E’ separately.

```
def test():
    f=open("Para.TXT")
    n1=0
    n2=0
    while True:
        l=..... //Statement
        if not l:
            break
        for i in l:
            if (i == 'E' or i == 'e'):
                n1=n1+1
            elif(i=='C' or i=='c'):
                n2=n2+1
    print(n1)
    print(n2)
    f.close()
```

- Which module needs to be imported to use text file handling functions?
- Write the functionname to close a file object.
- Write the code best suitable for statement as marked.

END

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SOLUTIONS

Sample Paper 9
Computer Science (083)
CLASS XII 2023-24

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
 2. The paper is divided into 4 Sections- A, B, C, D and E.
 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
 8. All programming questions are to be answered using Python Language only.
-

Section A

1. The alternate to `math.pow()` function is _____ operator.
(a) `**` (b) `^ .`
(c) `+=` (d) `/`
2. Two relations are joined using a common field called _____.
(a) Alternate key (b) Foreign key
(c) Candidate key (d) None of these
3. To print all elements of tuple in reverse order using _____.
(a) `[-1]` (b) `[: -1]`
(c) `[1 :]` (d) `[: : 1]`
4. Given : `s="Olympic@gmail.com"`. What will be the output of `print(s[2: :2])` ?
(a) 'ypcalcm' (b) 'ypcgalm'
(c) 'ypcglcm' (d) 'pcgalm'
5. State True or False
"A tuple is a immutable data type."
6. Which of the following Python functions do not require importing of a module?
(a) `type()` (b) `input()`
(c) `sqrt()` (d) Both (a) and (b)
7. Which of the following modes open a text file, such that the new data is written in it keeping the existing contents ?
(a) `r+` (b) `rw+`
(c) `w+` (d) `a`

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SOLUTIONS

8. The _____ clause with the update command specifies the attribute to be modified.
- (a) FIELD (b) ATTRIBUTE
(c) CHANGE (d) SET
9. Which of the following refers to a small, single site network?
- (a) DSL (b) RAM
(c) WAN (d) PAN
10. Write the output of given code:
- ```
s1 = 'Hello'
s2 = 'World'
s = s1 + s2
print(s)
```
- (a) Hello World (b) HelloWorld  
(c) 'Hellow' 'World' (d) Error
11. The \_\_\_\_\_ clause with GROUP BY, can filter groups from the query output.
- (a) WHERE (b) FILTER  
(c) HAVING (d) CHECK
12. Given a list L= [6,12,9,40,2,1]. Which of the following statements will arrange the list in reverse order
- (a) L.arrange()  
(b) L.sort()  
(c) L.sort(reverse=True)  
(d) L.sort(reverse=False)
13. Which method returns the next row from the result set as tuple?
- (a) fetchone() (b) fetchmany()  
(c) fetchall() (d) rowcount
14. An alternate key can be
- (a) only 1 in a table. (b) a table can have maximum 2 alternate keys.  
(c) a table can have at most 3 alternate keys. (d) multiple in a relation.
15. Which statement of SQL provides statements for manipulating the database objects?
- (a) DDL (b) DML  
(c) DCL (d) TCL
16. Which attribute is used to return access mode with that file was opened?
- (a) file.mode (b) mode.file  
(c) file\*mode (d) None of these

**Directions : (Q. Nos. 17 and 18) are Assertion and Reason based questions.**

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**SOLUTIONS**

17. Assertion (A) A python function can return more than one value to the calling function.  
Reason (R) The return statement takes only a list as parameter.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
18. Assertion (A) While opening a binary file the mode may not be specified.  
Reason (R) The open function for file opening by default takes the mode parameter as 'rb' for binary files, if no mode is specified.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

## Section B

19. Find the output of the following code :

```
i=1
while (i<5) :
 print(i)
 i = i*2
```

20. Give one suitable example of each URL and domain name.

or

Can we use URL to access a web page? How?

21. (a) Correct the error if any in the following statement.

```
(i) a + 5 = b
(ii) 1 = 2b + c * d
(iii) name = Aryan
(iv) a = 20
 print a;
```

- (b) Evaluate the following expression

If  $a = b = 10$ ,  $c = 5$   
 $a = b*3//4 + c//4 + 4 - b + 5//6$

22. Define UPDATE command of SQL with its basic syntax and also give one of its example.

23. (a) Write any two characteristics of IP address.  
(b) What is VoIP?

24. Write the one example of following terms.

|                |                 |
|----------------|-----------------|
| (i) Identifier | (ii) Punctuator |
| (iii) Keyword  | (iv) Constant   |

or

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**SOLUTIONS**



What will be the output of the following code?

```
a, b = 10, 5
x, y = a + b, b - 2
z = x - y
print ("x:", x, "y:", y, "z:", z)
```

25. Expand the following abbreviation :

- (i) SQL (ii) DML  
(iii) DDL (iv) TCL

or

Mention two characteristics of SQL.

## Section C

26. Consider the following tables PRODUCT and CLIENT

| TABLE : PRODUCT |               |              |       |
|-----------------|---------------|--------------|-------|
| PID             | ProductName   | Manufacturer | Price |
| TP01            | Talcom Powder | LAK          | 40    |
| FW05            | Face Wash     | ABC          | 45    |
| BS01            | Bath Soap     | ABC          | 55    |
| SH06            | Shampoo       | XYZ          | 120   |
| FW12            | Face Wash     | XYZ          | 95    |

| TABLE : CLIENT |               |           |      |
|----------------|---------------|-----------|------|
| C_ID           | ClientName    | City      | P_ID |
| 01             | Cosmetic Shop | Delhi     | FW05 |
| 06             | Total Health  | Mumbai    | BS01 |
| 12             | Live Life     | Delhi     | SH06 |
| 15             | Pretty Woman  | Delhi     | FW12 |
| 16             | Dreams        | Bengaluru | TP01 |

- (a) To display the ClientName, City from table CLIENT and ProductName and Price from table PRODUCT, with their corresponding matching P\_ID.
- (b) Write SQL queries for statements (i) to (iv)
- (i) To display the details of those Clients, whose City is Delhi.
- (ii) To display the details of products, whose Price is in the range of 50 to 100 (both values included).
- (iii) To display product name and their manufacturer whose Price is more than 100.
- (iv) To display client name for those whose product id is FW12.

27. Define a function in Python to accept a sentence and count the number of occurrences of the word “is” and “was”.

Example

Input : “He is a good boy. She was and is a good girl”

Output :

No. of is : 2

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**SOLUTIONS**

No. of was : 1

or

Write a definition of a function that takes input a sentence and display the list of words that start with a lowercase vowel and list of words that start with a uppercase vowel separately.

Example

Input : A quick black elephant enters Into a jungle.

Output

List of words starting with lowercase vowels ['elephant', 'enters', 'a']

List of words starting with uppercase vowels ['A', 'Into']

28. (a) Write SQL commands (i) to (iv) for the following tables :

| TABLE : STUDENT |                |           |        |     |     |     |
|-----------------|----------------|-----------|--------|-----|-----|-----|
| S NO            | NAME           | STREAM    | FEES   | AGE | SEX | AID |
| 1               | ARUN KUMAR     | COMPUTER  | 750.00 | 17  | M   | A1  |
| 2               | DIVYA JENEJA   | COMPUTER  | 750.00 | 18  | F   | A2  |
| 3               | KESHAR MEHRA   | BIOLOGY   | 500.00 | 16  | M   | A2  |
| 4               | HARISH SINGH   | ENG. DR   | 350.00 | 18  | M   | A1  |
| 5               | PRACHI         | ECONOMICS | 300.00 | 19  | F   | A3  |
| 6               | NISHA ARORA    | COMPUTER  | 750.00 | 15  | F   | A3  |
| 7               | DEEPAK KUMAR   | ECONOMICS | 300.00 | 16  | M   | A1  |
| 8               | SARIKA VASWANI | BIOLOGY   | 500.00 | 15  | F   | A1  |

| TABLE: ADDRESS |            |
|----------------|------------|
| AID            | City       |
| A1             | Jamshedpur |
| A2             | Kolkata    |
| A3             | Mumbai     |

- List the name of all the students, who have taken stream as COMPUTER.
  - To count the number of female students.
  - To display the number of students stream wise.
  - To display names of the students with corresponding cities.
- (b) Write the command to display all the tables in the database.

29. Write a program to calculate the sum and mean of the elements which are entered by user.

30. Write the Push operation of stack containing person names. Notice that the name should only accept characters, spaces and period (.) except digits. Assume that Pname is a class instance attribute.

or

Find the final contents of a stack that encounters the following tokens.

Assume that an operand is pushed to stack and a binary operator pops two operands from stack and pushes the result to the stack.

100,8,3,\*,50,2,+,+,\*

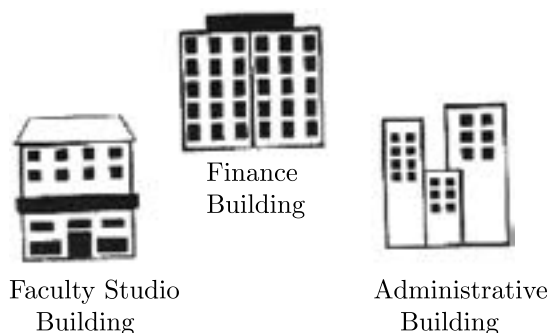
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**SOLUTIONS**

## Section D

31. Expertia Professional Global (EPG) is an online corporate training provider company for IT related courses. The company is setting up their new campus in Mumbai. You as a network expert have to study the physical locations of various buildings and the number of computers to be installed. In the planning phase, provide the best possible answers for the queries (i) to (v) raised by them.

### Physical locations of the buildings of EPG



### Building to building distance (in metre)

| From                    | To                      | Distance |
|-------------------------|-------------------------|----------|
| Administrative Building | Finance Building        | 60       |
| Administrative Building | Faculty Studio Building | 120      |
| Finance Building        | Faculty Studio Building | 70       |

### Expected computers to be installed in each building

| Buildings               | Computers |
|-------------------------|-----------|
| Administrative Building | 20        |
| Finance Building        | 40        |
| Faculty Studio Building | 120       |

- (i) Suggest the most appropriate building, where EPG should plan to install the server.
  - (ii) Suggest the most appropriate building to building cable layout to connect all three buildings for efficient communication.
  - (iii) Which type of network out of the following is formed by connection the computers of these three buildings?
    - (a) LAN    (b) MAN    (c) WAN
  - (iv) Write the difference between LAN and MAN.
  - (v) Expand the following
    - (a) WAN    (b) MAN
32. (a) Write a Python program to find maximum and minimum elements in a tuple.
- (b) Consider the table MobileStock with following fields  
 M\_Id, M\_Name, M\_Qty, M\_Supplier  
 Write the Python code to fetch all records with fields M\_Id, M\_Name and M\_Supplier from database Mobile.

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**SOLUTIONS**

or

- (a) Which of the following are invalid names and why?  
 (i) PaidInterest (ii) S-num  
 (iii) Percent (iv) 123
- (b) Write the steps for Database connectivity with short explanation of each step.

33. What does tell() method do?

- (a) AddRegistration() : To accept more student registration data and store them to the binary file keeping the existing registration data.  
 A Binary file "Registration.dat" exists storing details of students who have been registered for CBSE board exams. The file stores following data of students :  
 RegnNo StudName class No of subjects
- (b) CountRegistrations() : Display count of registrations using the functions.

or

What does seek() method do?

- (a) PutBike() : To accept data of more bikes and store them to the file "Bikes.csv"  
 A CSV file "Bikes.csv" stores details of bikes with their brand names, cc and cost.  
 Record structure of "Bikes.csv"  
 BID Bname Brand Cost
- (b) SearchBike(bikeid) : To open the file "Bikes.csv" and display details of the bike whose from id is supplied as the parameter to the function.

## Section E

34. Consider the following table ORDERS :

| TABLE : ORDERS |            |            |          |
|----------------|------------|------------|----------|
| O_Id           | OrderDate  | OrderPrice | Customer |
| 1              | 2008/11/12 | 1000       | Hansen   |
| 2              | 2008/10/23 | 1600       | Nilsen   |
| 3              | 2008/09/02 | 700        | Hansen   |
| 4              | 2008/09/03 | 300        | Hansen   |
| 5              | 2008/08/30 | 2000       | Jensen   |
| 6              | 2008/10/04 | 100        | Nilsen   |

- (i) Write a statement to create the above table.  
 (ii) Write a command to change the width of Customer column to varchar(30)  
 (iii) Write statements to :  
 (a) Display the field names, their type , size and constraints .  
 (b) Display details of orders where orderprice is in the range 500 to 1500  
 or (Option for part iii only)  
 (a) Write a command to increase orderprice of all orders by 15%.  
 (b) Name the constraint that will restrict both NULL and DUPLICATE values in the O\_Id field.

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**SOLUTIONS**

35. A user-defined method to open a text file “para.txt” and write its contents to another file after removing the 3rd line

```
def Func():
 with open ('Para.txt', 'r') as f:
 l=f.readlines()
 f.close()
 print(l)
 del l[3]
 print(l)
 f=open ('Para.txt', 'w')
 f.....
 f.close()
```

- (a) Which module needs to be imported to use operating system functions like rename() and remove().
- (b) Write the function name to open a text file.
- (c) Fill the blank as marked in above code.

END

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**SOLUTIONS**

**Sample Paper 10**  
**Computer Science (083)**  
**CLASS XII 2023-24**

**Time: 3 Hours**

**Max. Marks: 70**

**General Instructions:**

1. Please check this question paper contains 35 questions.
  2. The paper is divided into 4 Sections- A, B, C, D and E.
  3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark
  4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
  5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
  6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
  7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
  8. All programming questions are to be answered using Python Language only.
- 

**Section A**

1. The output of `print(math.ceil(17.34))` is  
(a) 18 (b) 17  
(c) 10 (d) 20
2. The.....clause is used in SQL to specify a range of values.  
(a) WHERE (b) DROP  
(c) BETWEEN (d) RANGE
3. Two friends have connected their computers , but are getting weak signals. Which device need to be used to get better signals?  
(a) Repeater (b) Hub  
(c) Switch (d) Modem
4. \_\_\_\_\_ method creates a cursor object while connecting a Python application with a Mysql database.  
(a) `connection( )` (b) `connect( )`  
(c) `cursor( )` (d) None of these
5. The default mode in which a file is opened is  
(a) r (b) rw+  
(c) w (d) a
6. Which attribute is used to return access mode with that file was opened?  
(a) `mode.file` (b) `mode.file.name`  
(c) `file.mode` (d) `file.mode.type`
7. Which of the following is not a DDL command ?  
(a) ALTER (b) CREATE  
(c) DROP (d) DELETE
8. State True or False  
‘A dictionary is ordered by index’.

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9. The module required to use the mode function is  
(a) math (b) statistics  
(c) random (d) Pandas
10. The.....command can be used to remove all records of a table along with the table structure.  
(a) DELETE TABLE (b) DROP TABLE  
(c) REMOVE TABLE (d) None of these
11. What is the output of the following code?  

```
>>> a = 10
>>> b = 2
>>> print(a + 10 * 2 + b)
```

  
(a) 32 (b) 22  
(c) 40 (d) 80
12. Which function is used to generate a sequence of numbers overtime?  
(a) range() (b) len()  
(c) limit() (d) lim()
13. Which of the following symbol is used in Python for comments?  
(a) \$ (b) @  
(c) // (d) #
14. Given a list Lst= [65,182,90,420,20,10]. What will be the correct statement to take out the 3rd element from the list?  
(a) Lst.pop(2) (b) L.find(2)  
(c) L.pop(-1) (d) L.del(90)
15. The relation between Primary key , Candidate key and Alternate key is  
(a) Primary key = Candidate key - Alternate key  
(b) Candidate key= Primary key - Alternate key  
(c) Alternate key= Primary key+ Candidate key  
(d) None of the above
16. The first integrity rule for relational databases ensures that \_\_\_\_\_  
(a) Primary key is unique  
(b) Foreign key is unique  
(c) Primary key is unique and NOT NULL  
(d) There is only one candidate key

**Directions (Q.Nos. 17-18) are Assertion and Reason based questions.**

17. Assertion (A) User-defined functions must stay in a Python module.  
Reason (R) Each user-defined function must stay in a module ,which is linked to a folder where all the user defined functions of the module stay.  
(a) Both A and R are true and R is the correct explanation for A.  
(b) Both A and R are true but R is not the correct explanation for A.  
(c) A is true but R is false.  
(d) A is false but R is true.

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18. Assertion (A) Python supports addition of data in file , preserving the previous data.  
Reason (R) The write mode erases all previous data of a pre-existing file.
- (a) Both A and R are true and R is the correct explanation for A.
  - (b) Both A and R are true but R is not the correct explanation for A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.

## Section B

19. Write the corresponding Python expression for the following mathematical expression.
- (i)  $z = a/a + b - d^2$
  - (ii)  $z = x^2 + y^3$
20. Mr. GopiNath Associate Manager of Unit. Nations corporate recently discovered that the communication between his company's accounts office and HR office is extremely slow and signals drop quite frequently. These offices are 120 metre away from each other and connected by an Ethernet cable.
- (i) Suggest him a device which can be installed in between the office for smooth communication.
  - (ii) What type of network is formed by having this kind of connectivity out of LAN, MAN and WAN?

or

Define hub and write its functions and types.

21. (a) Determine which of the following identifiers are valid. If invalid, explain with reason.

- (i) name\_1      (ii) \_SUM
- (iii) \$Sum      (iv) num ^ 2

- (b) Find the output of the following code

```
i=1
while (i<5):
 print(i)
 i=i*2
```

22. Differentiate between char(n) and varchar(n) data types with respect to databases.
23. (a) Mention any two advantages of E-mail over conventional, mail.  
(b) Mr. Lal owns a factory which manufactures automobile spare parts. Suggest him the advantages of having a web page for his factory
24. Name the tokens that are available in Python.

or

Find the syntax error in the following program and underline after correct them.

```
90 = w
while(w > 60)
 print(w)
w = w - 50
```

25. Explain the use of ORDER BY clause.

or

What are DDL and DML?

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**SOLUTIONS**



## Section C

26. Consider the tables FAMILY and Occupation:

| TABLE FAMILY |         |                |              |        |               |
|--------------|---------|----------------|--------------|--------|---------------|
| No           | Name    | Female Members | Male Members | Income | Occup-ationId |
| 1            | Mishra  | 3              | 2            | 7000   | O1            |
| 2            | Gupta   | 4              | 1            | 50000  | O2            |
| 3            | Khan    | 6              | 3            | 8000   | O2            |
| 4            | Chaddha | 2              | 2            | 25000  | O1            |
| 5            | Yadav   | 7              | 2            | 20000  | O3            |
| 6            | Joshi   | 3              | 2            | 14000  | O2            |
| 7            | Maurya  | 6              | 3            | 5000   | O1            |
| 8            | Rao     | 5              | 2            | 10000  | O3            |

| Table : OCCUPATION |          |
|--------------------|----------|
| OccupationId       | Type     |
| O1                 | Service  |
| O2                 | Business |
| O3                 | Mixed    |

- (a) To display Family name , corresponding occupation and income where male members are more than 2.
- (b) Write SQL queries for statements (i) to (iv) based on tables FAMILY and Occupation.
- To select all the information of family, whose Occupation is Service.
  - To list the name of family, where female members are more than 3.
  - To list all names of family with income in ascending order.
  - To count the number of family, whose income is less than 10000.
27. Write a method countFile() to count and display the number of lines starting with the word 'FILE' (including small cases and upper cases) present in a text file "start.txt".
- e.g. If the file "start.txt" contains the following lines:
- Get the data value to be deleted,  
 Open the file for reading from it.  
 Read the complete file into a list  
 Delete the data from the list  
 Open the file  
 Open same file for writing into it  
 Write the modified list into file.  
 Close the file.
- The method should display
- Total lines started with word 'FILE' is/are: 0

or

Write definition of a function that takes input a sentence and display the list of words that end with a lowercase vowel and list of words that end with a lowercase consonant

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**SOLUTIONS**

28. (a) Study the following tables DOCTOR and SALARY and write SQL commands for the questions (i) to (iv).

| TABLE: DOCTOR |          |            |     |                   |
|---------------|----------|------------|-----|-------------------|
| ID            | NAME     | DEPT       | SEX | E X P E R - IENCE |
| 101           | John     | ENT        | M   | 12                |
| 104           | Smith    | ORTHOPEDIC | M   | 5                 |
| 107           | George   | CARDIOLOGY | M   | 10                |
| 114           | Lara     | SKIN       | F   | 3                 |
| 109           | K George | MEDICINE   | F   | 9                 |
| 105           | Johnson  | ORTHOPEDIC | M   | 10                |
| 117           | Lucy     | ENT        | F   | 3                 |
| 111           | Bill     | MEDICINE   | F   | 12                |
| 130           | Morphy   | ORTHOPEDIC | M   | 15                |

| TABLE: SALARY |       |           |              |
|---------------|-------|-----------|--------------|
| ID            | BASIC | ALLOWANCE | CONSULTATION |
| 101           | 12000 | 1000      | 300          |
| 104           | 23000 | 2300      | 500          |
| 107           | 32000 | 4000      | 500          |
| 114           | 12000 | 5200      | 100          |
| 109           | 42000 | 1700      | 200          |
| 105           | 18900 | 1690      | 300          |
| 130           | 21700 | 2600      | 300          |

- (i) Display NAME of all doctors who are in MEDICINE department having more than 10yrs experience from the table DOCTOR.
  - (ii) Display the average salary of all doctors working in ENT department using the tables DOCTOR and SALARY.  $SALARY = BASIC + ALLOWANCE$ .
  - (iii) Display the minimum ALLOWANCE of female doctors.
  - (iv) Display the highest consultation fee among all male doctors.
- (b) Write the command to change the data type of consultation to double(8,3).

29. Write a program to count the frequency of elements in a list entered by user.

30. Write the Push operation of stack containing person names. Notice that the name should only accept characters, spaces and period (.) except digits. Assume that Pname is a class instance attribute.

or

Find the final contents of a stack that encq]nters the following tokens.

Assume that an operand is pushed to stack and a binary operator pops two operands from stack and pushes the result to the stack.

(100, 8, 3, \*, 50, 2, +, +, \*)

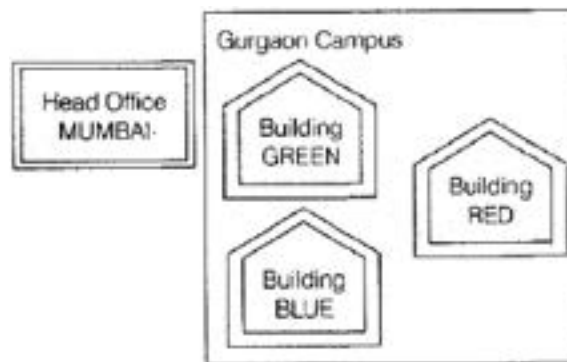
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**SOLUTIONS**

## Section D

31. Workalot consultants are setting up a secured network for their office campus of Gurgaon for their day-to-day office and web based activities. They are planning to have connectivity between 3 buildings and the head office situated in Mumbai.

Answer the questions (i) to (v) after going through the building positions in the campus and other details, which are given below:



### Distance between various buildings

|                                 |         |
|---------------------------------|---------|
| Building GREEN to Building RED  | 110 m   |
| Building GREEN to Building BLUE | 45 m    |
| Building BLUE to Building RED   | 65 m    |
| Gurgaon Campus to Head Office   | 1760 km |

### Number of computers

|                |     |
|----------------|-----|
| Building GREEN | 32  |
| Building RED   | 150 |
| Building BLUE  | 45  |
| Head Office    | 10  |

- (i) Suggest the most suitable place (i.e. building) to house the server of this organisation. Also, give a reason to justify your suggested location.
  - (ii) Suggest a cable layout of connections between the buildings inside the campus.
  - (iii) Suggest the placement of the following devices with justification :
    - (a) Switch
    - (b) Repeater
  - (iv) Write the use of Modem in a network.
  - (v) What is the use of firewall in network?
32. (a) Write a Python program to concatenate following dictionaries to create a new one.
- ```
d1={ 'A' :10, 'B' :20 }
d2={ 'C' :30, 'D' :40 }
d3={ 'E' :50, 'F' :60 }
```
- (b) Consider the table MobileStock with following fields
 M_Id, M_Name, M_Qty, M_Supplier
 Write the Python code to fetch all records with fields M_Id, M_Name and M_Supplier from database Mobile.

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or

- (a) Sohan has a list containing 8 integers as marks of subject Science. You need to help him to create a program with separate user defined function to perform the following operations based on the list.
- (i) Push those marks into a stack which are greater than 75.
 - (ii) Pop and display the content of the stack.

Simple Input

Marks = [75, 80, 56, 90, 45, 62, 76, 72]

Sample Output

80 90 76

- (b) Consider the following table Traders with following fields

TCode	TName	City
T01	Electronic Sales	Mumbai
T03	Busy Store Corp	Delhi
T02	Disp House Inc	Chennai

Write Python code to display the names of those traders who are either from Delhi or from Mumbai.

33. What is difference between tell() and seek() methods?

A Binary file "lottery.dat" stores details of lottery ticket holders . The file stores the following details :

TicketNo State Type Prizemoney

Write a program using two functions to operate the file data.

- (a) AddBuyers(State) : To accept more ticket details and store them into the file only if the ticket is not from state passed as parameter to the function.
- (b) TicketSearch(tid) : To open the file "lottery.dot" and display details of the ticket whose id is supplied as the parameter to the function.

or

Compare text files and binary files.

A Binary file "car.dat" stores details of cars. The file stores the following details :

CarNo Brand Kms Cost

Write a program using two functions to operate the file data.

- (a) AddCardata() : To accept car details and store them into the file "car.dat"
- (b) CarReport() : To open the file "car.dat" and display details of the cars who have run more than 100000 kilometres.

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Section E

34. Consider the following table FLIGHTS :

TABLE : FLIGHTS				
FL_NO	STARTING	ENDING	NO_FLIGHT	NO_STOPS
IC301	MUMBAI	DELHI	8	0
IC799	BENGALURU	DELHI	2	1
MC101	INDORE	MUMBAI	3	0
IC302	DELHI	MUMBAI	8	0
AB812	KANPUR	BENGALURU	3	1
IC899	MUMBAI	KOCHI	1	4
AM501	DELHI	TRIVANDRUM	1	5
MU499	MUMBAI	MADRAS	3	3
IC701	DELHI	AHMEDABAD	4	0

- (i) The command to create the table was written as :
 Create table FLIGHTS(FL_NO integer, STARTING char(20), ENDING char(30), NO_FLIGHT integer, NO_STOPS integer);
 What is wrong with command ?
- (ii) What is the cardinality of the table ?
- (iii) Which functions will be used to :
 (a) Display total number of flights .
 (b) Display number of flights whose FL_NO starts with “IC”
 (option for part (iii) only)
 Write function names to :
 (a) Show the average Number of stops.
 (b) Show the maximum number of stops.

35. A user-defined method to open a text file ‘Author.txt’ and display the lines that have even number of words.

- ```
def evenwords():
 f=open("Author.txt")
 ln=f.readlines()
 for line in ln:
 linex=.....// Statement
 if len(linex)%2==0:
 print(line)
 f.close()
```
- (a) How is readline() method different from readlines() method in Python?  
 (b) Write the use of the reader object in csv file operations.  
 (c) Fill the blank as marked statement.

END

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