Chapters: Computer networks, Database management system, Interface with Python

Time: 3 hours   **Max mark:70**

 <u>**General Instructions:**</u>

- ❖ **This question paper contains five sections, Section A to E.**
- ❖ **All questions are compulsory.**
- ❖ **Section A have 18 questions carrying 01 mark each.**
- ❖ **Section B has 07 Very Short Answer type questions carrying 02 marks each**
- ❖ **Section C has 05 Short Answer type questions carrying 03 marks each.**
- ❖ **Section D has 03 Long Answer type questions carrying 05 marks each.**
- ❖ **Section E has 02 questions carrying 04 marks each. 8.**
- ❖ **All programming questions are to be answered using Python Language only.**

<u>Section A</u>

1. Which type of network work as a master slave network

   a. Peer to peer   b. client server   c. wide area network   d . none of these

2. Internet is an example of ......

   a. LAN   b. PAN   c. MAN   d. WAN

3. 2 GBps =.......................(approximately)

   a. 20 MBps   b. 200 MBps   c. 2000 MBps   d. none of these

4. Which network topology is excellent for long distance networking

   a. Tree   b. star   c. mesh   d. ring

5. RJ -45 consist of how many wires?

   a. 4   b. 8   c. 10   d. 12

6. Address is assigne d by NIC manufacturer is called..............

   a. IP   b. MAC   c. physical   d. both b and c

7. Which device is used to connect the different type of networks

   a. Switch   b. router   c. hub   d. bridge

8. What will be the order of the data being sorted after the execution of given query

     SELECT * FROM employee ORDER BY emp_Name;

   a.   Custom Sort   b. Descending   c. Ascending   d. None of the above

9. Which command is used to display the structure of the table

   a. Describe   b. show   c. desc   d. both a and c

10. To retrieve a single row from the result set, which method is usefull?

    a. fetchall   b. fetchone   d. fetchmany   d. fetchrow

11. Which is an optional parameter when you create connection object?

    a. host   b. user   c. password   d. database

12. Which one of the following option is not an aggregate function

    a. min   b. max   c. sum   d. add

13. All the possible primary key set is …………

    a. alternative key   b. foreign key   c. unique key   d. candidate key

14. Which query is used to change the structure of the table?

    a. Update   b. change   c. modify   d. alter

15. Which statement is remove the duplicate values in the select query

    a. distinct   b. unique   c. different   d. all of these

16. When we use the between clause which statement is correct?

    a. Both upper and lower limit will include in the result

    b. Only upper limit is include no lower limit in the result

    c. No upper limit only lower limit is included in the result

    d. No upper and no lower limit is included in the result

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

        (a) Both A and R are true and R is the correct explanation for A

        (b) Both A and R are true and R is not the correct explanation for A

        (c) A is True but R is False

        (d) A is false but R is True

17. **Assertion**: create, delete and alter commands are DDL commands

    Reasoning: Database schema is specified by a set of definitions which are expressed
            by DDL

18. **Assertion**: Aggregate functions take multiple values as input and product single
            output

    Reasoning: There are six types of aggregate functions.

<u>**Section B**</u>

19. Differentiate switch and hub?

20. What are the uses of TCP protocol?

21. Differentiate LAN and WAN?

22. What is baud rate?

23. What is domain attribute?

24. What is DML statement?

25. How to establish connection between MySql and python, With syntax?

Section C

26. Explain guided medium?

27. What is web hosting? Explain its different types?

28. Consider the Employee table structure

attribute	datatype	size	keys
Emp_id	int		Primary key
Emp_name	varchar	20	
age	in		
dob	date		
aadhar	bigint		
designation	varchar	20	
salary	int		

a) Write sql statement for creating the table employee?

b) Write the statement to display the structure of the table

c) Suppose this table consists of 7 records, what is the cardinality and degree?

29. Compare the following topology

   a) Bus   b) Star   c)Ring

30. Consider the below table Movie write down the query (a) to (c)

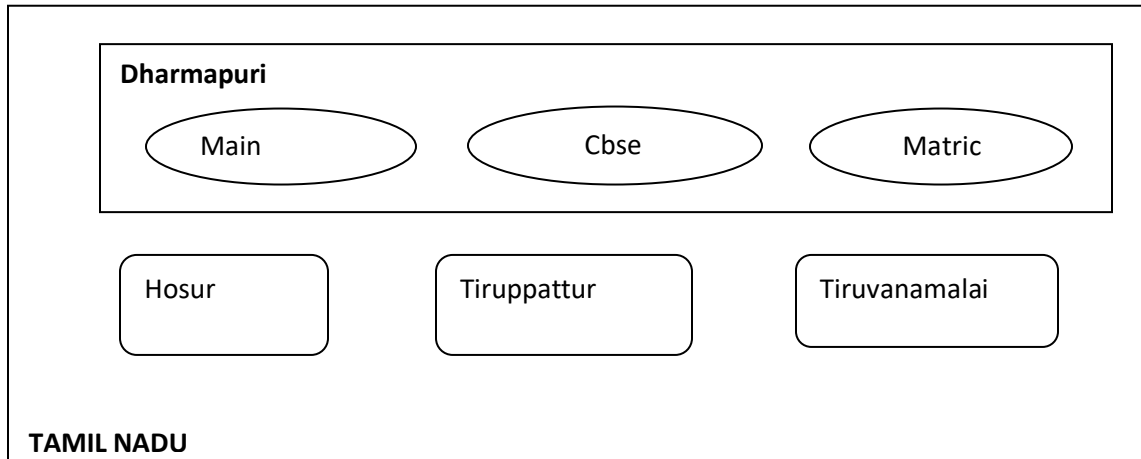| Movie_id	Movie_name	Collection(cr)	Year	Language
1	Dangal	2000	2016	Hindi
2	Bahubali	1800	2017	Telugu
3	RRR	1300	2022	Telugu
4	KGF	1250	2022	Kanada
5	Jawan	1100	2023	Hindi
6	Pathan	1050	2023	Hindi

a) Display the details of the movie which released on 2022

b) Display the name of the movie which name ends with 'n'

c) Display the details of the Telugu movie which get maximum profit

31.

Sri Vijay Group of institution is planning to start their schools in four major cities in Tamil nadu to provide Education. The institution has planned to setup their head office in Dharmapuri in three location and have name their Dharmapuri office as "Main Office", "Cbse" and "Matric". The institutions other schools are loacated in "Hosur", "Tiruppattur", and "Thiruvanamalai". A rought layout of the same is as follows.

```
┌─────────────────────────────────────────────────────────────────┐
│   ┌──────────────────────────────────────────────────────────┐   │
│   │  Dharmapuri                                              │   │
│   │   ⬭ Main        ⬭ Cbse           ⬭ Matric              │   │
│   └──────────────────────────────────────────────────────────┘   │
│                                                                   │
│   ┌───────────┐     ┌───────────────┐     ┌───────────────┐       │
│   │  Hosur    │     │  Tiruppattur  │     │ Tiruvanamalai │       │
│   └───────────┘     └───────────────┘     └───────────────┘       │
│                                                                   │
│   TAMIL NADU                                                      │
└─────────────────────────────────────────────────────────────────┘
```

Approximate distance between these office as per network survey team is as follows:

Place From	Place TO	Distance
main Office	cbse	1.5 KM
Main office	matric	300 M
cbse	matric	500 M
Main office	Hosur	200 K M
Main office	Tiruppattur	100 KM
Main office	Tiruvanamalai	120 KM

In continuation of the above , the company expert have planned to install the following number of computer in each of their offices:

Institutions	Number of computers
Main office	25
Cbse	125
Matric	75
Hosur	70
Tiruppattur	40
Tiruvanamalai	30

a) Suggest network type for connecting each of the following set of their institutions:

- Head Office and Cbse
- Head Office and Hosur

b) Which device you will suggest to be produced by the company for connecting all the computers with in each of their offices out of the following device?

i) Switch/Hub   ii) Modem   iii) Telephone

c) Which of the following communication media, you will suggest to be procured by the company for connecting their local institutions in Dharmapuri for very effective and fast communication.

i) Telephone Cable   ii) Optical fibre   iii) Ethernet cable

d) Suggest a Cable /Wiring layout for connecting the local institutes located in Dharmapuri . Also, suggest an effective method /technology for connecting the institution other campus at "Hosur","Tiruppattur" and "Tiruvanamalai".

32. Explain :-

a) Router
b) Bridge
c) Gateway
d) modem

33. Consider the Department and Teachers tables, write down the query (a) to (e)

Department

Dept_id	Dept_name	No_of _students
101	Physics	45
102	chemistry	24
103	mathematics	27
104	Computer science	11

Teachers

T_id	Name	Salary	No_of _periods	DOB	Dept_id
1	Ajith	34000	32	1985-11-07	104
2	Vijay	48000	35	1987-09-12	102
3	Vishal	30000	36	1989-12-31	101
4	Surya	49000	38	1987-07=08	103
5	Jeeva	25000	32	1988-11-02	102
6	Arya	26000	36	1990-03-25	103
7	Siva	38000	40	1991-07-07	101

 a. Display the name of the teachers who celebrate birthday in the month of November

 b. Display the details of the teacher who have maximum number of periods?

 c. Display department name and average salary of teachers in each department which have more than 30000 average salary

 d. Remove the details of teacher who get lowest salary?

 e. Increase the salary of the teachers who handling more than 33 periods?

Section E

34. Sachin is writing a code to fetch data from a database Library and table name Book using Python. He want to display all book details written by APJ,He has written incomplete code. You have to help him write complete code:

Note the following to establish connectivity between Python and MYSQL:

- Host is localhost
- Username is root
- Password is hello

```
import _____ as m                                    # Statement-1
object1 = m.connect(_____ , _____  ,_____ , _____  )    # Statement 2
object2 = object1._____                                   # Statement-3
query = '''SELECT * FROM Book WHERE author_name="APJ";
rows=object2._____(query)                                 # Statement-4
for row in rows:
   print(row)
object1.close()
```

35. Consider the below table Movie write down the output of the query (a) to (d)

Movie_id	Movie_name	Collection(cr)	Year	Language
1	Dangal	2000	2016	Hindi
2	Bahubali	1800	2017	Telugu
3	RRR	1300	2022	Telugu
4	KGF	1250	2022	Kanada
5	Jawan	1100	2023	Hindi
6	Pathan	1050	2023	Hindi

a) Select sum(collection) from Movie where Language in ('Telugu,Kanada');

b) Select Language ,count(Movie_id) from Movie group by Language having sum(Collection)>2000;

c) Select * from Movie order by Movie_name desc;

d) Select * from Movie where collection=(select min(collection)from Movie) and Language='Hindi'