



**SRI VIJAY VIDYASHRAM SENIOR SECONDARY SCHOOL, DPI/BGR**

**Second 50% Examination**

**Class :12**

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

**Time: 3 hours**

**Max mark:70**

General Instructions:

- ❖ 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.

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**Section A**

1. Which switching method is connection oriented?  
a. Message switching                      b. circuit switching                      c. packet switching  
d. both a and c
2. Infrared communication is an example of .....  
a. PAN                      b. LAN                      c. WAN                      d. MAN
3. Which among following network device is broad cast device  
a. Switch                      b. Hub                      c. modem                      d. Repeater
4. Which device is cable for communication two different architecture based network .  
a. Bridge                      b. modem                      c. Router                      d. gateway
5. Which protocol is used for remote login  
a. SMTP                      b. PPP                      c. RLP                      d. Telnet
6. Which of the following protocol is not involved in mail communication  
a. IMAP                      b. POP3                      c. PPP                      d. SMTP
7. Which among the following option is not a web browser?  
a. Chrome                      b. mozilla                      c. apple                      d. safari
8. Which one is the country domain ?  
a. Com                      b. .org                      c. .edu                      d. .in
9. What is the need of Database  
a. Security                      b. accuracy                      c. data integrity  
d. all of the above
10. The columns of a table that points to the primary key of another table  
a. Alternative key                      b. Foreign key                      c. unique key                      d. super key
11. GRANT command is an example of .....  
a. DDL                      b. DML                      c. DCL                      d. TCL
12. What is the format of date data type in SQL?  
a. YYYY/MM/DD                      b. DD/MM/YYYY  
b. c. DD-MM-YYYY                      d. YYYY-MM-DD
13. Which command is used to view the structure of the table?

- a. Show                      b. describe                      c. desc                      d. both A and B
14. Which constraints ensures that all values in a column satisfies a specific condition
- a. Unique                      b. default                      c. check                      d. domain
15. How many aggregate functions are there?
- a. 4                      b. 5                      c. 6                      d. 7
16. A table Employee consists of 5 records and department table consist 4 records, if we take the Cartesian product of two tables how many records will present in the result?
- a. 9                      b. depends on the join condition                      c. 20                      d. 7

**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:** Active Hub is a type of hub need additional power supply  
**Reasoning:** Active Hub forwards the signal with improvement in the quality of data signal by amplifying it.
18. **Assertion:** Alter command is a DML command  
**Reasoning:** Alter command is used to alter the structure of the table

### **Section-B**

19. Differentiate count(\*) and count(<attribute\_name>) functions
20. Differentiate active hub and passive hub?
21. What is cursor object?
22. What is FTP protocol?
23. What is the difference between drop and delete commands?
24. What you mean by like operators?
25. A table student contain 4 columns and 6 rows, 2 rows added and 1 column deleted from the table student, what is the degree and cardinality of the table student?

### **Section- C**

26. Explain the following terms
- a) Router    b) Modem    c) repeater
27. Consider tables:

#### **Employee**

Emp_id	Emp_name	Joining_date	Designation	Salary	Dept_id
101	Rohit	2021-12-12	Manager	40000	1
102	Ajmal	2022-11-11	Asst manager	20000	2
103	Lakshya	2020-10-10	Cashier	15000	1
104	Kishan	2019-19-09	Asst. Manager	20000	3
105	Madhumitha	2018-18-08	Cashier	15000	3

#### **Department**

Dept_id	Dept_name
1	Finance
2	HR
3	Accounts

Write down the output of the following queries:

- i. Select emp\_name, designation, Dept\_name from Employee, Department where Employee.Dept\_id=Department.Dept\_id ;
- ii. Select \* from employee, Department
- iii. Write query for left join on tables Employee and Department

28. Consider the table student description:

Field name	Data type	Size	Keys	Null
Roll no	Int		Primary key	
Name	varchar	15	unique	Not Null
Course	varchar	15	unique	Not Null
Fees	int	6	unique	Not Null
Date_of_birth	date		unique	Not Null
Weightage	int			Not null

- i. Create the table student
- ii. What is the primary key in the table
- iii. Add one more column aadhar with data type big int

29. Write a short note on

- i. POP3
- ii. SMTP
- iii. IMAP

30. Consider the following table:

**Batsman**

Rank	Player	Nation	Innings	Runs	Highest Score	Hundred
1	Virat Kohli	IND	11	765	117	3
2	Rohit Sharma	IND	11	597	131	1
3	Quinton de Kock	SA	10	594	174	4
4	Rachin Ravindra	NZ	10	578	123	3
5	Daryl Mitchell	NZ	9	552	134	2
6	David Warner	AUS	11	535	163	2
7	Shreyas Iyer	IND	11	530	128	2
8	KL Rahul	IND	10	452	102	1
9	Rassie van der Dussen	SA	10	448	133	2

Write the queries based on the following query

- i. Display the name of the batsman who scored more than 500 runs
- ii. Display the name of the batsman who nation in ('AUS','SA')
- iii. Display the nation name which has more entry in the batsman table.

#### **Section D**

31. InfoTech is a computer manufacturer company headquarters in New York, planning to establish a network in their Mumbai section. In Mumbai section, there are four block – Admin ,HR ,Finance ,and Factory. As a network expert try to help authority to establish the network and give guidance for them. The distance between the buildings is given below:

<b>Building to Building</b>	<b>Distance in Meter</b>
Admin- HR	500
Admin-Finance	300
Admin- Factory	400
HR-Finance	600
HR- Factory	200
Finance-Factory	700

The number of computers installed in each building

<b>Building</b>	<b>No of computers</b>
Admin	100
Factory	50
Finance	25
HR	30

Write the solutions following queries

1. What will be the most appropriate block, where should plan to house the server?
2. Suggest the cable layout to connect all the buildings in the most appropriate manner for efficient communication.
3. What will the best suitable connectivity out of the following to connect the offices in Mumbai with its New York based office?  
(a) Infrared (b) Satellite Link (c) Ethernet Cable
4. Suggest the placement of the following devices with justification.  
(a) Hub / Switch (b) Repeater
5. Which service / protocol will be most helpful to conduct the live interactions of Experts from New York to Human Resource Block
6. Suggest the best-wired medium and mention the topology or layout to connect various building

32. Consider the following tables

#### **Company**

<b>C_id</b>	<b>Company_name</b>	<b>Made_in</b>
101	Samsung	Japan
102	Vivo	Chinese

103	Apple	America
104	Nokia	Finland
105	Realme	Chinese

### **Mobile**

<b>Model</b>	<b>Price</b>	<b>RAM</b>	<b>Battery</b>	<b>Connectivity</b>	<b>Company_id</b>
Galaxy A14	18000	6	6000	5G	101
T2x	15000	8	5000	4G	102
T2 Pro	23000	8	5500	5G	102
IPhone 14	63000	16	7000	5G	103
Narzo n53	8500	4	4500	4G	105
Galaxy M34	23000	8	6000	5G	101

Write the query for the following questions I to V

- Display the details of mobile phone, which price is ranging from 10000 to 20000
  - Display the model of Samsung mobile ,which price is greater than 20000
  - Display the no.of mobiles in each company.
  - Samsung company actually reduce the price of their mobile phones by 20 % write down the query
  - Display the details of Samsung mobile phone having highest price?
33. Explain switching techniques?

### **Section -E**

34. Rohith wants to write a program in Python to insert the following record in the table named employee in MYSQL database Factory with attributes:
- Emp\_id- integer
  - Name - string
  - DOB – Date
  - salary – float

Note the following to establish connectivity between Python and MySQL:

- Username – root
- Password - tiger
- Host - localhost.

The values of field's emp\_id, name, DOB and salary has to be accepted from the user. Help Rohith to write the program in Python.

### **OR**

Virat is writing a code to fetch data from a database School and table Teacher using Python. He want to display all teachers details in commerce department, 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 mysql.connector as m
object1 = m.connect( , , ) # Statement 1
object2 = object1._____ # Statement-2
query = "SELECT * FROM teacher WHERE department="commerce";
object2._____(query) # Statement-3
rows=object2._____ # statement 4
for row in rows:
    print(row)
```

35. Consider the following tables- write down the ouptu of the following queries

**Manufacture**

C_id	C_name
1	LG
2	Samsung
3	Prestige
4	Whirlpool

**Item**

Item_no	Name	Manf_date	Price	C_id	Stock_Qty
1	TV	2023-01-08	15000	1	20
2	TV	2023-03-24	14000	2	18
3	Refrigerator	2023-05-12	18000	1	24
4	Refrigerator	2023-10-05	16500	4	15
5	Mixer	2023-05-05	6000	3	12
6	AC	2023-08-12	25000	4	11

- Select Name,price\*0.1 as discount from Item where Name='TV';
- Select item,avg(price) from item group by Name;
- Select name,c\_name from item, Manufacture where  
item.C\_id=manufacture.C\_id and price>15000;
- Select name,count(\*) from item group by name order by name desc;