

JEE (MAIN + ADVANCED) : ENTHUSIAST COURSE

COMPUTER SCIENCE

SOLUTION

SECTION-A

1. Insertion technically means PUSH.
Deletion technically means POP.
2. (a) Bus topology
(b) Star topology
3. A relation is a table having atomic values, unique and unordered rows and columns,. The relational model represent data and relationship among data by a collection of tables known as relation, each of which has a number of columns with unique names .
4. DDL – Data Definition Language
DML – Data Manipulation Language
Any two out of INSERT, DELETE, UPDATE
5. (a) COUNT(*) City
 - 2 Mumbai
 - 2 Delhi
 - 2 Moscow
 (b) MAX(DOB) MIN(DOB)
08-12-1995
07-05-1993
6. (i) ORDER BY
(ii) SHOW CHARACTER SET
7. (a) Cardinality : 4
Degree : 5
(b) Cardinality : 7
Degree : 6

OR

Degree : 10 (No. of columns)
Cardinality : $10 - 3 = 7$ (no. of rows)

SECTION-B

8. **Infix notation** : Operators are written in between their operands. This is the usual way we write expressions. An expression such as

$$A*(B + C) / D$$

Postfix notation (also known as "Reverse Polish notation") : Operators are written after their operands. The postfix expression given above is equivalent to :

$$A B C + *D/$$

Prefix notation (also known as "Polish notation") : Operators are written before their operands. The expression such as :

$$/ * A + B C D$$

OR

Step 1 Start**Step 2** Initialize top with -1.**Step 3** Input the new element.**Step 4** Increment top by one.**Step 5** stack[top]=new element**Step 6** Print "Item Inserted"**Step 7** Stop

9. A join is a query that combines rows from two or more tables. In a join query, more than one tables are listed in FROM clause. The function of combining data from multiple tables is called joining.

Joins are used when we have to select data from two or more tables. Joins are used to extract data from two tables, when we need a relationship between certain columns in these tables. ,There are different kind of SQL joins.

(i) Equi-Join

Equi join is a simple SQL join condition that uses equal sign as a comparison operator.

Syntax

```
SELECT column1, column2, column3
FROM Table1, Table2
WHERE Table1 . column1 = Table2 . columnI ;
```

(ii) Natural Join

The natural join is a type of equi join and is structured in such a way that, columns with same name of associated tables will appear once only.

Syntax

```
SELECT * FROM Table 1
NATURAL JOIN Table2;
```

(iii) Non-equi join

It is used to return the result from two or more tables, where exact join is not possible. The SQL, non-equi join uses comparison operators instead of the equal sign like >, <, >=, <= along with conditions.

10. (i) SELECT NAME FROM COMPANY WHERE COMPANY.CID = CUSTOMER.CID AND PRICE < 30000 ;
- (ii) SELECT NAME FROM COMPANY ORDER BY NAME DESC ;
- (iii) UPDATE CUSTOMER
SET PRICE = PRICE + 1000
WHERE NAME LIKE 'S%' ;

SECTION-C

11. (a) SELECT TEACHERNAME, PERIODS
FROM SCHOOL WHERE PERIODS > 25 ;
(b) SELECT * FROM SCHOOL ORDER BY EXPERIENCE DESC ;
(c) SELECT DISTINCT DESIGNATION FROM ADMIN ;
(d) SELECT TEACHERNAME ; CODE
DESIGNATION FROM SCHOOL, ADMIN
WHERE SCHOOL, CODE = ADMIN.CODE AND
GENDER = MALE ;

12. (i)

Packet switching	Message switching
<ul style="list-style-type: none"> • There is a tight upper limit on the block size. A fixed size of packet is specified. • All the packets are stored in main memory in switching office. 	<ul style="list-style-type: none"> • In message switching, there is no upper limit. • In message switching, packets are stored on disk. This increases the performance as access time is reduced.

OR

Twisted Pair cable	Co-axial Cable
<ul style="list-style-type: none"> (i) Their bandwidth is not as high as coaxial cables. (ii) A twisted pair consists of two copper wires twisted around each other (each has its own insulation around it) like a double helix. 	<ul style="list-style-type: none"> (i) It has high bandwidth. (ii) A coaxial cable consists of a copper wire core covered by an insulating material and a layer of conducting material over that.

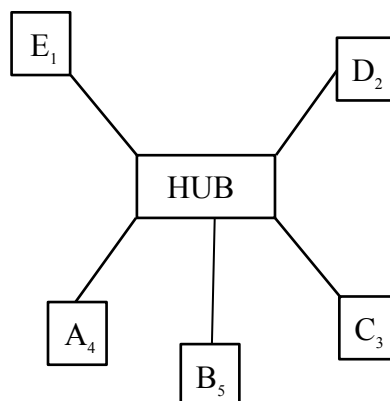
(ii)

PAN	LAN
<ul style="list-style-type: none"> • PAN stands for Personal Area Network. • It spans over a few meters. 	<ul style="list-style-type: none"> • LAN stands for Local Area Network. • It spans over a few Km.

OR

Chat	E-mail
<ul style="list-style-type: none"> (i) Chat occurs in near real time. (ii) Chat is a 2-way communication which requires the permission of both parties. 	<ul style="list-style-type: none"> (i) e-mail does not. (ii) e-mail is one way communication.

13. (i) Block C, It has maximum number of computers.
(ii) LAN, Because network spans over a building.
(iii) Star topology



(iv) Ethernet Cable

