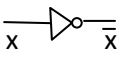


# SCHEME OF VALUATION – APRIL - 2022

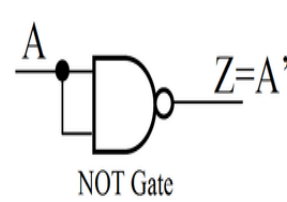
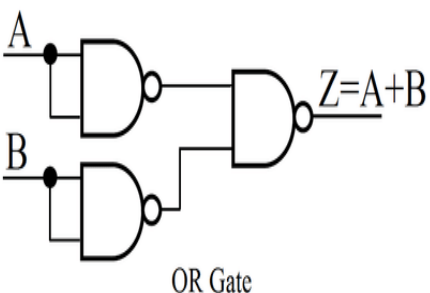
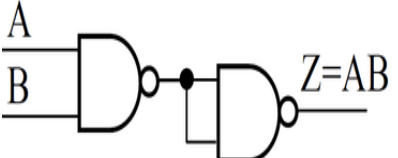
SUBJECT : COMPUTER SCIENCE

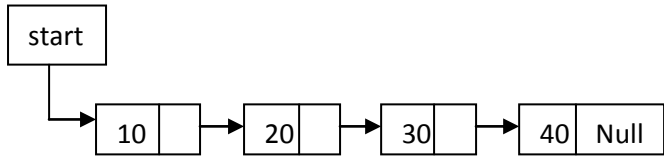
CODE : 41

VERSION : ENGLISH

QN.NO.	ANSWER	MARKS
<b>PART – A</b>		
<b>I</b>		
<b>1.</b>	Complementary Metal Oxide Semiconductor.	<b>1m</b>
<b>2.</b>	If a variable is complemented twice we get the same variable.  OR $\overline{\overline{X}} = X$	<b>1m</b>
<b>3.</b>	$0.1=0$	<b>1m</b>
<b>4.</b>		<b>1m</b>
<b>5.</b>	Trees OR Graphs	<b>1m</b>
<b>6.</b>	The process of presenting the essential features without including background details or explanation is called Data Abstraction.	<b>1m</b>
<b>7.</b>	.(dot) operator	<b>1m</b>
<b>8.</b>	Private access specifier is implicitly used in a class.	<b>1m</b>
<b>9.</b>	A constructor is a special member function that is used in a class to initialize the objects automatically.	<b>1m</b>
<b>10.</b>	'new' operator is used to allocate memory for the objects during runtime.	<b>1m</b>
<b>11.</b>	Processed data with some meaning is called information.	<b>1m</b>
<b>12.</b>	Analysis and picking out relevant information is called data mining.	<b>1m</b>
<b>13.</b>	The actual appearance or layout of the network is called as network topology.	<b>1m</b>
<b>14.</b>	Telnet is the internet utility that allows to log on to the remote computer system.	<b>1m</b>
<b>15.</b>	XML is eXtended Markup Language for documents containing structured information.	<b>1m</b>
<b>PART – B</b>		
<b>II</b>		
<b>16.</b>	(i) Online UPS (ii) Standby UPS ( Offline UPS)	<b>1m</b> <b>1m</b>
<b>17.</b>	$X(X+Y)=X$ LHS $=X(X+Y)$ $=X.X+X.Y$ $=X+X.Y$ (X.X=1)	

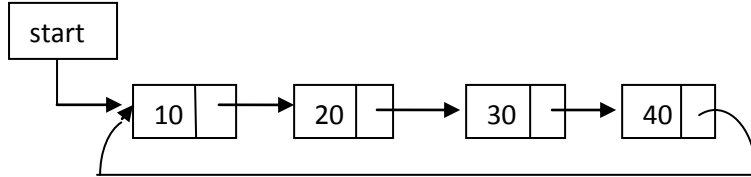


<p><b>24.</b></p>	<p><b>Web browsers :</b></p> <ul style="list-style-type: none"> <li>(i) Google chrome</li> <li>(ii) Mozilla firefox</li> <li>(iii) Internet explorer</li> <li>(iv) Opera</li> <li>(v) Safari</li> </ul> <p style="text-align: right;">Any two (each -1m)</p>	<p><b>2m</b></p>
<p><b>25.</b></p>	<p><b>Web scripting :</b>  The process of creating and embedding scripts in a web page is known as web scripting.  Types of web scripting :</p> <ul style="list-style-type: none"> <li>(i) Client-side scripts</li> <li>(ii) Server-side scripts</li> </ul> <p style="text-align: right;">Any one</p>	<p><b>1m</b></p> <p><b>1m</b></p>
<p><b>III</b> <b>26.</b></p>	<p style="text-align: center;"><b>PART - C</b></p> <p><b>Characteristics of motherboard :</b></p> <ul style="list-style-type: none"> <li>(i) <b>Form factor :</b>  It refers to motherboard geometry, dimensions, arrangements and electrical requirements.</li> <li>(ii) <b>Chipset :</b>  Chipset controls the majority of resources of the computer. The function of the chipset is to co ordinate the data transfer between the various components of the computer.</li> <li>(iii) <b>Processor socket :</b>  Used to fix processor on the motherboard, if it is rectangular in shape processor is fixed vertically, if square in shape , processor is directly inserted.</li> </ul> <p style="text-align: right;">Each characteristic 1m</p>	<p><b>3m</b></p>
<p><b>27.</b></p>	<p><b>Basic gates using NAND gate :</b></p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>NOT Gate</p> </div> <div style="text-align: center;">  <p>OR Gate</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p>AND Gate</p> </div> <p style="text-align: right;">Each gate 1m</p>	<p><b>3m</b></p>
<p><b>28.</b></p>	<p><b>Types of linked lists :</b></p> <ul style="list-style-type: none"> <li>(i) <b>Singly linked lists:</b>  In singly linked list each node contains two parts . The first part contains the information called data field and the second part contains the address of the next node in the list, this is also called the link field.</li> </ul>	



**(ii) Circular linked list :**

If the link field of the last node contains the address of the first node, such a linked list is called as circular linked list. In a circular linked list, it is possible to reach any node from any other node.



**(iii) Doubly linked list :**

In doubly linked list each node contains three parts – FORW, BACK and INFO.  
 BACK: It is a pointer field containing the address of the previous node.  
 FORW: It is a pointer field that contains the address of the next node.  
 INFO: It contains the actual data.  
 Possible to access all the nodes from any node of the linked list.



Each type 1m

**3m**

**29.**

**Inheritance :**

It is the capability of one class to acquire the properties (data and functions ) of another class.

**Base class :**

The class whose properties are inherited by another class.

**Derived class :**

The class which inherits the properties from base class.

**1m**

**1m**

**1m**

**30.**

**Difference between static and dynamic memory allocations :**

STATIC MEMORY ALLOCATION	DYNAMIC MEMORY ALLOCATION
1. Memory is allocated during compilation time.	1. Memory is allocated during run time.
2. Variables remain permanently allocated.	2. Memory is allocated only when the program is active.
3. No memory is allocated and de allocated during execution of the program.	3. Memory allocation and de allocation takes place during execution of the program.
4. Implemented using stacks and heaps.	4. Implemented using data segments.

	<p>5. Wastage of memory.</p> <p>6. Amount of memory to be allocated is pre known.</p>	<p>5. Proper memory utilization</p> <p>6. Amount of memory allocated is need not be pre known.</p>	<p>Any three differences (each 1m)</p>	<p><b>3m</b></p>
31.	<p>get() : This function reads a single character from a text file.</p> <p>getline() : This function reads an entire line of text from a text file.</p> <p>Read() : This function reads binary data from a binary file.</p>			<p><b>1m</b></p> <p><b>1m</b></p> <p><b>1m</b></p>
32.	<p><b>ORDER BY</b> clause is used to sort the data in ascending or descending order, based on one or more columns.</p> <p><b>Syntax:</b> The basic syntax of ORDER BY clause is as follows: SELECT column-list FROM table_name [WHERE condition] [ORDER BY column1, column2,.. columnN][ASC   DESC];</p> <p><b>Ex :</b> SELECT Regno, Class, Combination FROM Student ORDER BY Regno ASC;</p>			<p><b>1m</b></p> <p><b>1m</b></p> <p><b>1m</b></p>
33.	<p><b>Virus prevention methods :</b></p> <ol style="list-style-type: none"> <li>1.Never use a “Foreign” disk or CD without scanning it for viruses.</li> <li>2.Always scan files downloaded from the internet or other sources.</li> <li>3.Never boot your PC from a floppy unless you are certain that it is virus free.</li> <li>4.Write protect your disks.</li> <li>5.Use licensed software.</li> <li>6.Password protect your PC to prevent unattended modification.</li> <li>7.Install and use antivirus software.</li> <li>8.Keep antivirus software up to date.</li> </ol>		<p>Any three ( each 1m)</p>	<p><b>3m</b></p>
34.	<p>Types of E-Commerce :</p> <ol style="list-style-type: none"> <li>1. <b>Business-to-Business (B2B )</b> : The exchange of services, information and/or products from one business to another Business partners using computer and communication system. Ex Ebay.com</li> <li>2. <b>Business-to-Consumer (B2C)</b> : The exchange of services, information and/or product from a business to a consumer using computer and communication system.</li> <li>3. <b>Consumer-to-Business (C2B)</b> : Customer directly contact with business vendors by posting their project work with set budge online so that the needy companies review it and contact the customer directly with bid. The consumer reviews all the bids and</li> </ol>			

	<p>selects the company for further processing. Ex: guru.com, freelancer.com.</p> <p>4. <b>Consumer-to-consumer (C2C)</b> : Buying and selling of goods and services between two consumers using computer and communication systems. Ex : OLX.com</p> <p style="text-align: right;">Any three ( each 1m)</p>	<b>3m</b>
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<b>35.</b>	<p>HTML Tags :</p> <p>(i) &lt;i&gt;__&lt;/i&gt; This tag displays the output italicized.</p> <p>(ii) &lt;b&gt;__&lt;/b&gt; This tag displays the output in bold letters.</p> <p>(iii) &lt;u&gt;__&lt;/u&gt; This tag displays the output underlined.</p> <p style="text-align: right;">Any other three tags (each 1m)</p>	<b>3m</b>
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<b>IV</b>	<b>PART - D</b>
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<b>36.</b>	<p><math>F(A,B,C,D)=\Sigma(0,1,4,5,7,8,9,12,13,15)</math></p> <div style="text-align: center;"> </div> <p>Simplifying Octet : <math>\bar{C}</math> Simplifying Quad : <math>BD</math></p> <p>Simplified SOP equation : <math>F(A,B,C,D) = \bar{C} + BD</math></p>	<p><b>2m</b></p> <p><b>1m</b></p> <p><b>1m</b></p> <p><b>1m</b></p>
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<b>37.</b>	<p><b>Insertion sort algorithm :</b></p> <p>Step 1 : For <math>l = 1</math> to <math>N - 1</math></p> <p>Step 2 : <math>J = l</math></p> <p style="padding-left: 20px;">while (<math>J &gt; 1</math>)</p> <p style="padding-left: 40px;">if (<math>A[J] &lt; A[J-1]</math>)</p> <p style="padding-left: 60px;"><math>temp = A[J]</math></p>	
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	<pre> A[J] = A[J-1] A[J-1] = temp [ End if ] J = J - 1 [ End of while loop] [ End of for loop ] Step 3 : Exit </pre>	5m
38.	<p>Stack Operations :</p> <p>stack() : Creates an empty stack.</p> <p>push(item) : Inserts a new item to the top of the stack.</p> <p>Pop() : Removes the top most item from the stack.</p> <p>peek() : Returns the top most item from the stack.</p> <p>isEmpty() : Checks whether the stack is empty or not and returns true if the stack is empty.</p> <p>size() : Returns the number of items in the stack.</p> <p style="text-align: right;">Any five ( each 1m)</p>	5m
39.	<p><b>Algorithm for deleting an element from the QUEUE</b></p> <p>Step 1 : If FRONT = -1 OR NULL then  print "QUEUE IS EMPTY"  exit</p> <p>Step 2 : ITEM = QUEUE[FRONT]</p> <p>Step 3 : If FRONT = REAR then  FRONT = 0  REAR = 0  else  FRONT = FRONT + 1  [end of if]</p> <p>Step 4 : Return</p>	5m
40.	<p><b>Advantages of Object Oriented Programming :</b></p> <ul style="list-style-type: none"> <li>(i) Programs are modularized with classes and objects</li> <li>(ii) Encapsulation provides security for data.</li> <li>(iii) OOP reduces code duplication. Code reusability is possible because of inheritance.</li> <li>(iv) Data abstraction separates object specification and object implementation.</li> <li>(v) Complex software can be easily developed.</li> <li>(vi) OOP decreases software development time.</li> <li>(vii) Communication between the functions is very simple with message passing</li> </ul> <p style="text-align: right;">Any five ( each 1m)</p>	5m

<p><b>41.</b></p>	<p><b>Functions defined inside the class :</b></p> <p>A function defined in a class is treated as inline function. Only small functions are defined inside class definition.</p> <p>Syntax :</p> <pre>return_type  function_name() { Function body }</pre>	<p>Explanation with syntax <b>3m</b></p> <p>Any appropriate example program <b>2m</b></p>
<p><b>42.</b></p>	<p><b>Friend function :</b></p> <p>Friend function is a non member function of the class but has full access rights to private and protected members of that class.</p> <p><b>Characteristics of friend function :</b></p> <ul style="list-style-type: none"> <li>(i) A friend function although not a member function, has full access right to the private and protected members of the class.</li> <li>(ii) A friend function cannot be called using the object of that class. It can be invoked like any normal function.</li> <li>(iii) They are normal external functions that are given special access privileges.</li> <li>(iv) It cannot access the member variables directly and has to use an object name.membername (Here, . is a membership operator).</li> <li>(v) The function is declared with keyword friend. But while defining friend function it does not use either keyword friend or :: operator.</li> </ul>	<p><b>1m</b></p> <p>Any four characteristics (each 1m) <b>4m</b></p>
<p><b>43.</b></p>	<p><b>Destructor :</b></p> <p>A destructor is a special member function that will be executed automatically when an object is destroyed. Destroying an object means, de-allocating all the resources such as memory that was allocated for the object by the constructor.</p> <p><b>Syntax:</b></p> <pre>class classname { private: data variables      //method</pre>	<p><b>1m</b></p>



```

public:
classname();      //constructor
~classname();    //destructor
};

```

2m

```

Ex:
class counter
{
private:
int count;
public:
counter( )
{
count = 0;
}
~counter()
{ }
};

```

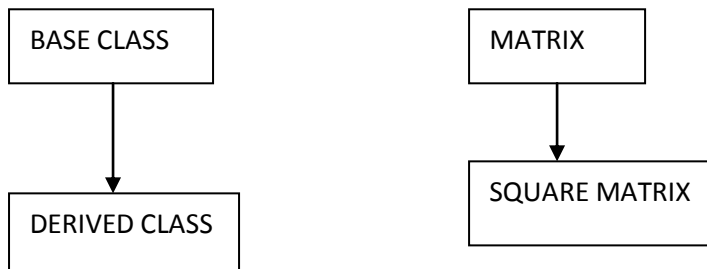
Any relevant example

2m

**44. Types of inheritance :**

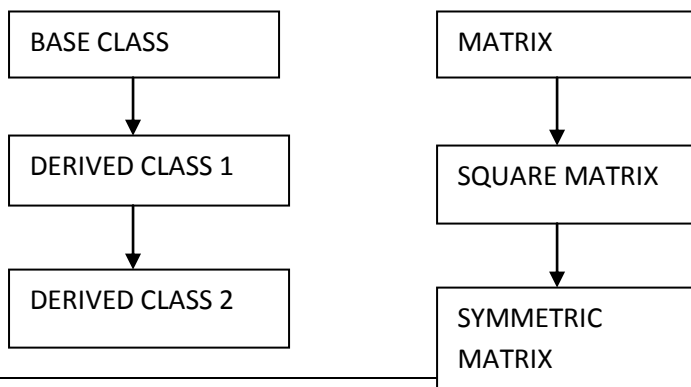
**(i) Single Inheritance :**

If a class is derived from a single base class, it is called as single inheritance.



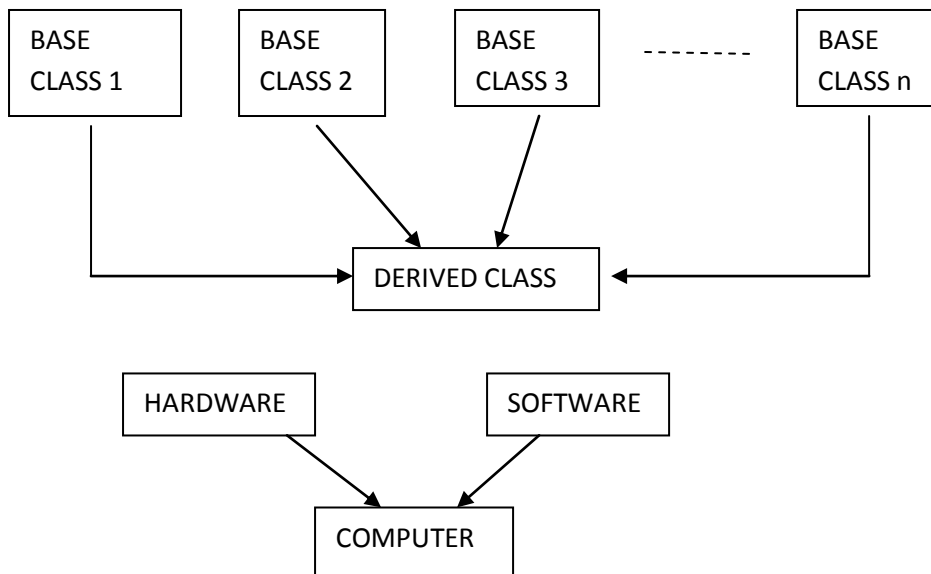
**(ii) Multilevel Inheritance :**

The classes can also be derived from the classes that are already derived. This type of inheritance is called multilevel inheritance.



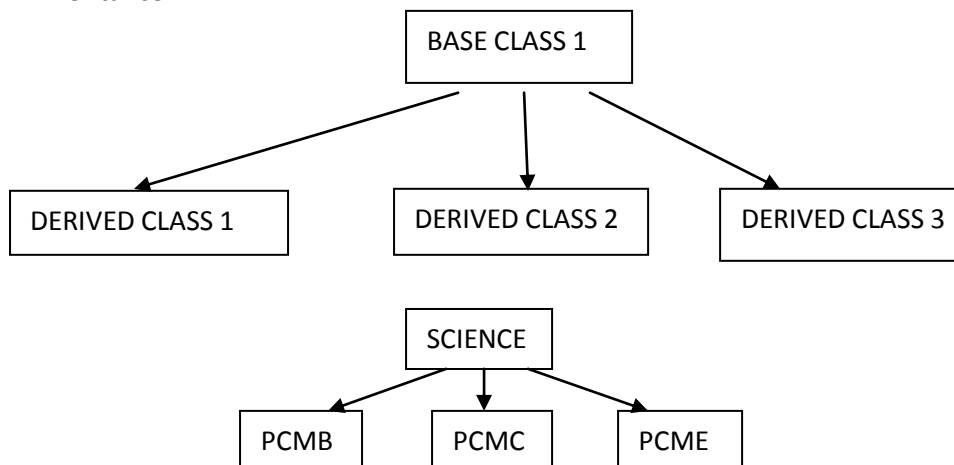
**(iii) Multiple Inheritance :**

If a class is derived from more than one base class, it is known as multiple inheritance.



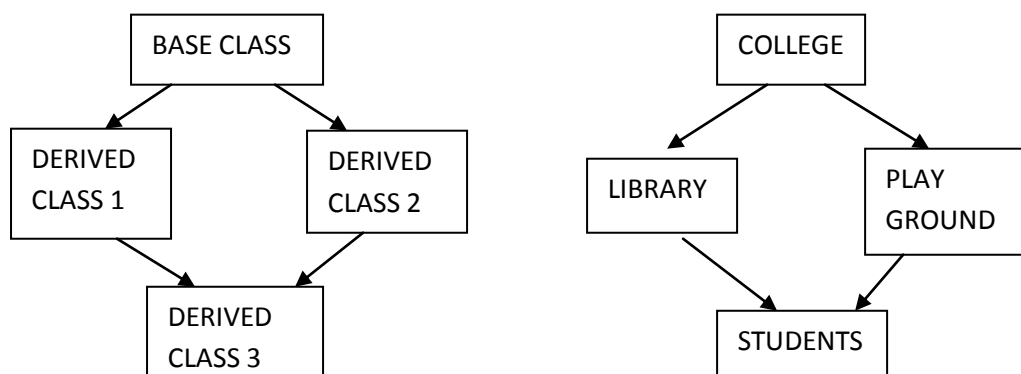
**(iv) Hierarchical Inheritance :**

If a number of classes are derived from a single base class, it is called as hierarchical inheritance.



**(v) Hybrid Inheritance :**

Hybrid Inheritance is combination of Hierarchical and Multilevel Inheritance.



<p><b>45.</b></p>	<p><b>Data processing cycle :</b></p> <ul style="list-style-type: none"> <li>(i) <b>Data Input :</b> Data is input to the data processing system in its acceptable form.</li> <li>(ii) <b>Data processing :</b> The processing is a series of actions or operations from the input data to generate outputs. some of the operations are classification based on some condition, calculation, sorting, indexing, accessing data, extracting part of filed/attribute, substring etc., conversion of data into information.</li> <li>(iii) <b>Data storage :</b> Processed data to be stored permanently for future use using secondary storage devices.</li> <li>(iv) <b>Data output :</b> After processing the data must be presented to the user in user understandable form. The result may be in form of reports (hardcopy / softcopy).</li> <li>(v) <b>Communication :</b> With the help of communication system information can be transmitted to required person . Ex : E – mail.</li> </ul> <p style="text-align: right;">Each step 1m</p>	<p><b>5m</b></p>								
<p><b>46.</b></p>	<p><b>Features of database system :</b></p> <ul style="list-style-type: none"> <li>(i) <b>Centralized data management :</b> Data is stored centrally and shared among multiple users.</li> <li>(ii) <b>Controlled data redundancy :</b> It eliminates data duplication and saves storage space.</li> <li>(iii) <b>Data sharing :</b> The data stored in the database can be shared among multiple users or application programs.</li> <li>(iv) <b>Data security:</b> Since the data is stored centrally, enforcing security constraints is much easier</li> <li>(v) <b>Backup and recovery :</b> The RDBMS provides backup and recovery subsystem that is responsible for recovery from hardware and software failures.</li> </ul> <p style="text-align: right;">Any 5 appropriate features( each feature 1 m)</p>	<p><b>5m</b></p>								
<p><b>47.</b></p>	<p><b>Logical operations of SQL :</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">OPERATOR</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>NOT</td> <td>Reverses the meaning of the logical operator with which it is used.</td> </tr> <tr> <td>AND</td> <td>Used to combine multiple conditions. Returns true if all the conditions are true</td> </tr> <tr> <td>OR</td> <td>Used to combine the multiple conditions. Returns true if any one conditions is true.</td> </tr> </tbody> </table>	OPERATOR	DESCRIPTION	NOT	Reverses the meaning of the logical operator with which it is used.	AND	Used to combine multiple conditions. Returns true if all the conditions are true	OR	Used to combine the multiple conditions. Returns true if any one conditions is true.	
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	<table border="1"> <tr> <td>BETWEEN</td> <td>Used to search for values that are within a set of values, given the range of values.</td> </tr> <tr> <td>IS NULL</td> <td>Checks whether the field is null</td> </tr> <tr> <td>UNIQUE</td> <td>This operator search every row of a specified table for its uniqueness.</td> </tr> </table>	BETWEEN	Used to search for values that are within a set of values, given the range of values.	IS NULL	Checks whether the field is null	UNIQUE	This operator search every row of a specified table for its uniqueness.	<p style="text-align: center;">Any 5 operators (each 1m)</p>	<b>5m</b>
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IS NULL	Checks whether the field is null								
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<b>48.</b>	<p><b>DDL commands :</b></p> <p>DDL commands are used create the table, alter the table and delete the table.</p> <p>Commands are CREATE, ALTER and DROP</p> <p>(i) CREATE command : Used to create a table.</p> <p>Syntax :</p> <pre>CREATE TABLE tablename ( Column1 data_type, Column2 data_type, . . . Column n data_type );</pre> <p>Ex:</p> <pre>CREATE TABLE Student ( Regno number(5), Name varchar2(15), Class varchar2(10) );</pre> <p>(ii) ALTER command : used to alter the table by adding new column, changing the structure of the column and by deleting the unwanted column.</p> <p>Syntax :</p> <pre>ALTER TABLE table_name ADD (column dataype, column2 datatype.....);</pre> <p>Ex :</p> <pre>ALTER TABLE Student ADD(Address varchar2(25));</pre> <p>(iii) DROP command : Used to delete a table.</p>	<b>1m</b>							

	<p>Syntax :</p> <p>DROP TABLE tablename ;</p> <p>Ex : DROP TABLE Student;</p> <p style="text-align: right;">Any two commands</p>	<b>4m</b>
<b>49.</b>	<p><b>Computer Network :</b></p> <p>A Computer Network is an inter-connection of two or more autonomous computers.</p> <p><b>Goals of Computer Network :</b></p> <p><b>(i) Resource Sharing :</b></p> <p>The aim is to make all the programs, data and peripherals available to anyone on the network irrespective of the physical location of the resources and the user.</p> <p><b>(ii) Reliability :</b></p> <p>A file can have copies on two or three different machines, so if one of them is unavailable, the other copies could be used. For military, banking and many other applications it is great of importance.</p> <p><b>(iii) Cost Factor :</b></p> <p>Personal computers have better price/performance ratio than micro computers. So it is better to have PC's, one per user with data stored on one shared file server machine.</p> <p><b>(iv) Communication Medium:</b></p> <p>Using a network, it is possible for managers, working far apart, to prepare financial report of the company. The changes at one end can be immediately noticed at another and hence it speeds up cooperation among them.</p> <p style="text-align: right;">Each goal 1m</p>	<p><b>1m</b></p> <p><b>4m</b></p>