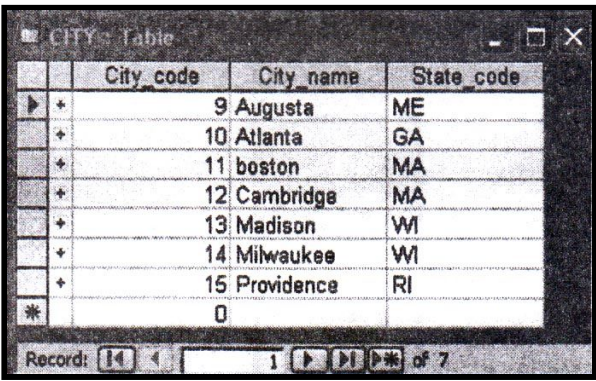**Important Note:**
● All answers provided in the Marking scheme are SUGGESTIVE.
● Examiners are requested to accept all possible alternative correct answer(s).
● Wherever HTML Tags are asked – ignore the format/additional arguments if so given in the answer(s)
● Wherever multiple answers are suggested, they are in order of appropriateness

1.	(a)	Define RDBMS. Give any two examples of RDBMS.	2
	Ans	A relational database management system (RDBMS) is a database management system (DBMS) that is based on the Relational Model. Examples: MySQL Oracle MS SQL Server SyBase IBM DB2	
		(1 mark for the correct definition) + *(½ mark for each correct RDBMS example - any two from the above or any other valid RDBMS)*	
	(b)	Define Candidate Key and Alternate Key.	1
	Ans	All those attributes/group of attributes, which can uniquely identify a tuple are known as Candidate Keys. Candidate Key(s), which is/are not primary key is/are alternate key	
		(½ mark for the correct Definition of Candidate Key) + *(½ mark for the correct Definition of Alternate Key)* *Note:* *Explanation of the concept of Candidate Key and Alternate using example should also be acceptable.*	
	(c)	Study the following data and answer the questions given below:	

	(i)	Name the fields, which can act as the primary key of this table:	1
	Ans	**City_code**	
		(1 mark for the correct identification of Column/Field name) *Note:* *(½ mark to be awarded if City_name is mentioned)*	
	(ii)	What is the degree and cardinality of this table?	1
	Ans	**Degree: 3** **Cardinality: 7**	
		(½ mark for the correct Degree) + *(½ mark for the correct Cardinality)*	

	(d)	Give full form of TIFF.	1
	Ans	Tagged Image Format File	
		(1 mark for correct full form) *NOTE:* *(½ mark to be awarded for expanding any two characters)*	
	(e)	Name any two popular image formats that are mostly used while designing web pages.	1
	Ans	jpeg/jpg png gif *OR* *Any other valid image format*	
		(½ mark for each correct image format - any two)	
	(f)	.mpeg is extension of which type of file?	1
	Ans	.mpeg is a Movie/Video type of file	
		(1 mark for the correct answer)	
	(g)	Name any one software used for image editing and one for sound editing.	2
		Image Editing (Any one) ● GIMP ● Paint.NET ● Photo Pos Pro ● Pixlr Editor ● PhotoScape ● Google Nik ● Blender ● Photoshop Sound Editing (Any one) ● Audacity ● SoundForge ● Ardour ● Traverso ● QTractor ● Linux Multimedia Studio (LMMS)	
		(1 mark for any correct name of image editing software) + *(1 mark for any correct name of sound editing software)* *Note:* *Marks to be awarded for any other valid image or sound file formats*	
2.		**Answer the following questions based on Macromedia Flash**	
	(a)	How a Flash movie is embedded in HTML?	2
	Ans	**Method 1** The Flash movie can be embedded in HTML **using the publish option/export option** **Method 2** The Flash movie can be embedded in HTML **using the <object>tag.** For example: <object width="400" height="50" data="CBSE.swf"></object>	

		Method 3 The Flash movie can be embedded in HTML **using the <embed>tag.** For example: <embed src="cbse.swf">	
		(2 marks for correctly explaining the method / naming the html tag – any one)	
	(b)	What do you mean by a frame?	**1**
	Ans	A frame is the smallest unit of change in an image **OR** A frame is a one of numerous still shots that when put together create actions **OR** A frame is denoted by the little rectangular cells in the timeline	
		(1 mark for correct definition) *Note: Full 1 mark to be awarded if the concept of frame has been explained with the help of an example/drawing*	
	(c)	What is a hidden layer?	**1**
	Ans	A hidden layer is one whose contents are not visible on the stage.	
		(1 mark for correct definition)	
	(d)	What is the use of icon A and B in the following figure? 	**2**
	Ans	A is *Lasso tool* which is used to *select irregularly shaped objects on the stage* B is *Eraser tool* used to *erase parts of graphic objects*	
		(1 mark for correct name OR correct usage of each tool)	
	(e)	Consider the figure given below and do as directed: 	**4**
		• The fish on the right hand side shows the position for frame 20. • The fish on the left hand side shows the position for frame 1. • The fish in frame 1 moves to frame 20 along the shown path and changes direction as shown in Figure.	

		● The picture of fish is stored in Flash library. Write the procedure and property settings for animating the above scenario.	
	Ans	● **Select frame 1** from the timeline and **drag** the fish graphic from the library on the **left hand side** of the stage ● **Select frame 20** from the timeline and **Select Insert a Keyframe** ● Using the arrow tool, **select** the image and **position it** on the right of the stage at the desired location. **Rotate the graphic** ● Select all frames from 1 to 20 ● Right Click and Select **Create Motion Tween** ● **Select the layer** containing the motion tween ● Right click and select **Add Motion Guide** ● Using the pencil tool, **draw the path of motion** as shown in the image **OR** **Any other equivalent method**	
		(½ mark for each step) *Note:* *Only keywords need to be checked.*	
3.		**Answer the following questions based on Html:**	
	(a)	Write the name of the tag and the attribute used for displaying some text for the browsers which do not support images.	2
	Ans	Tag - <IMG> Attribute - ALT	
		(1 mark for correct tag name) *+(1 mark for correct attribute name)*	
	(b)	Write the HTML code to generate a Web Page in the format given below: Consider the following while writing the HTML code:	8

		1. Title of the page should be "Flower"
		2. Background of page is "pink", Link colour should be "blue"
		3. Heading of page is "maroon"
		4. Picture used in the page is the file "flower.jpeg"
		5. Text in paragraph is red
		6. Table should have a border of width 1, border of table should be "green"
		7. Pages linked to:
		   ● Morphology as "morph.html"
		   ● Development as "dev.html"
		8. Bottom message is of size 2 and is mail link to contact@abc.com	

Ans

```
<html>
<title>Flower</title>                                    <!-- 1 -->
<body bgcolor="pink">                                     <!-- 2 -->
<center>
<font  color="maroon">                                    <!-- 3 -->
  <h1>FLOWER - Sometimes known as a Bloom or Blossom</h1>
</font></center>
<hr>
<img src="flower.jpg">                                    <!-- 4 -->
<font  color="red">                                       <!-- 5 -->
A flower is a part of a plant. Flowers are also called bloom or
blossom of a plant. The flower grows on a stalk - thin node - which
supports it. Flowers have petals. Inside the part of the flower
that has petals are the parts which produce pollen and seeds. In
addition to facilitating the reproduction of flowering plants.,
flowers have long been admired and used by humans to beautify their
environment and also as objects of romance, ritual religion
medicine and as a source of food.</font>
Pollination
<table border=1 bordercolor=green>                        <!-- 6 -->
   <tr><td>1</td><td>Pollen</td></tr>
   <tr><td>2</td><td>Attraction Method</td></tr>
   <tr><td>3</td><td>Pollination Mechanism</td></tr>
</table>

<p>Contents:<br>
<ol>
<li><a href="morph.htm">Morphology</a></li>          <!-- 7a -->
   <ul>
       <li>Floral Parts</li>
         <ul>
             <li>Vegetative</li>
             <li>Reproductive</li>
         </ul>
   </ul>
```

| | | ```html
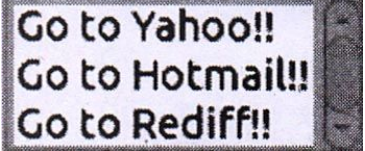<li><a href="dev.htm">Development</a></li>         <!-- 7b -->
    <UL>
        <li>Flowering Transtion</li>
        <li>Organ development</li>
    </ul>
</ol>
<hr>
For more details
<a href="mailto:contact@abc.com">Mail to us</a>   <!-- 8 -->
</body>
</html>
``` | |
		(1 Mark for correctly writing each part of the question) *Note:* *Point 7 of the question has ½ mark for each Part*	
4.		Answer the following questions based on PHP:	
	(a)	Identify the errors and rewrite the given code:	**2**
| | | ```php
<?
    $sum=0;
    $num=5;
    select($sum);
    {
      case 1:
            $num = $num + $sum;
      case 2:
            $num = $num + $sum;
      else
            $sum = $sum/$num;
?>
``` | |
| | **Ans** | ```php
<?
    $sum=0;
    $num=5;
    switch($sum)                        //Error 1 and Error 2
    {
      case 1:
            $num = $num + $sum;
      case 2:
            $num = $num + $sum;
      default:                          //Error 3
            $sum = $sum/$num;
    }                                   //Error 4
?>
``` | |
		(½ Mark for identifying and correcting each error) *OR* *(1 Mark for identifying all 4 errors without making corrections)*	
	(b)	Explain the difference between $_GET and $_POST variables.	**2**
	Ans		

$_GET	$_POST
An associative array of variables passed to the current script via the HTTP GET method	An associative array of variables passed to the current script via the HTTP POST method
$_GET is used for data that is not sensitive as information is visible in the URL while being sent to server	$_POST is used for data that contains sensitive information and needs to be hidden
Cannot be used for binary data	Can be used for both ASCII and binary data

(2 Marks for any one correct differentiation point between the two)
OR
(1 Mark if only one of the variable type is explained)

(c) Using PHP, create a text file saved as C:\xampp\htdocs\test\exam.txt in which write four **3** lines of
        English poem as written below:
     It would be an exotic moment
     Without rush, without engines.
     We would all be together
     In sudden strangeness.
In the same file write the code to display the lines of text that are beginning with "W"

Ans
```php
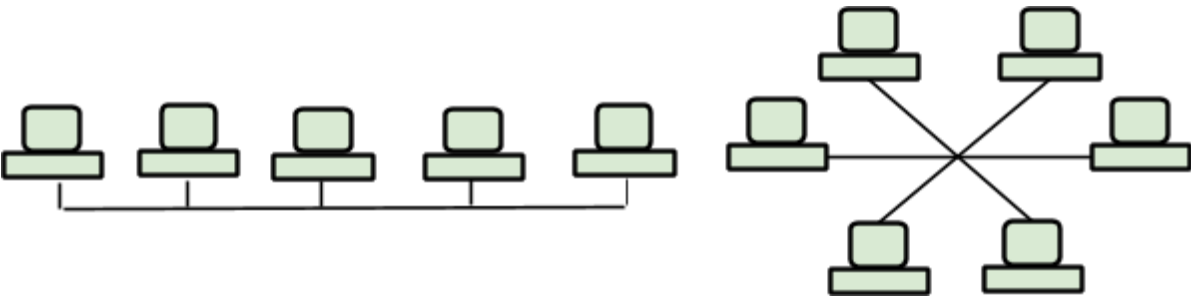<?php
  $file =  fopen("c:\xampp\htdocs\test\exam.txt" , "w");
  $text = "Fisherman in the cold sea \n";
  fwrite($file, $text);
  $text = "would not harm the whales \n";
  fwrite ($file, $text);
  $text = "and the man gathering salt \n";
  fwrite ($file, $text);
  $text = "would not look at his hurt hands\n";
  fwrite ($file, $text);
  fclose($file);
  $file =  fopen("c:\xampp\htdocs\test\exam.txt" , "r");
  while (!feof($file))
  {
      $line = fgets($file);
      if ($line[0] == 'A')
          echo $line."<BR>";
  }
  fclose($file);
?>
```

(1½ Mark for opening file in r or w mode)
(1½ Mark for writing the text on file or 1½ Mark for reading from the text file)
OR
(Full 3 Marks to be given if any one of the complete READ or WRITE operation is given)

	(d)	Give the output of the following statements: 　i.　　`echo(substr("abcdef", -2))` 　ii.　　`echo(strcasecmp("Hello", "hello"))` 　iii.　`echo((1 + (3 + 3)) * 2)`	3
	Ans	i.　　ef 　ii.　　0 　iii.　14	
		(1 Mark for correct output of each part)	
5.		Answer the following questions based on PHP:	
	(a)	What will be the values of variables x and y after executing the following code:	1

		``
		$a=0; $b=0;
		for($a = 1;$a<=3; ++$a)
		{
		    $b = $a++;
		    --$b;
		}
		``	

	Ans	$a = 5 $b = 2 OR Error as no variables named x and y exist in the code	
		(½ Mark each for correct value of variable a and b) *Note:* *Full 1 mark, if question is attempted/error mentioned)*	
	(b)	Give names of any two Superglobals.	1
	Ans	● $GLOBALS ● $_SERVER ● $_REQUEST ● $_POST ● $_GET ● $_FILES ● $_ENV ● $_COOKIE ● $_SESSION	
		(½ mark for each correct superglobal name - any two)	
	(c)	Write the output of following code:	2

		``
		function add(&$var)
		{
		    $var++;
		}
		$a = 1;
		$b = 10;
		add($a);
		echo "a is $a,";
		add($b);
		echo "a is $a, and b is $b";
		``	

	Ans	a is 2, a is 2, and b is 11	
		(½ mark for each part separated with a comma)	

		+ (½ *mark for the commas in between*) *Note:* *No marks to be deducted if output is given on separate lines*	
	(d)	Following is the code to create a connection to server and to create a database named myDB in mySQL.Fill in the blanks to complete the following code:	3

```php
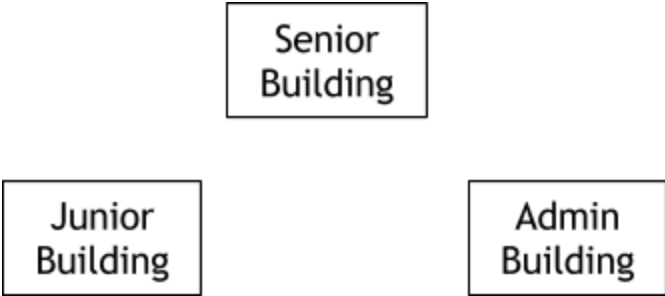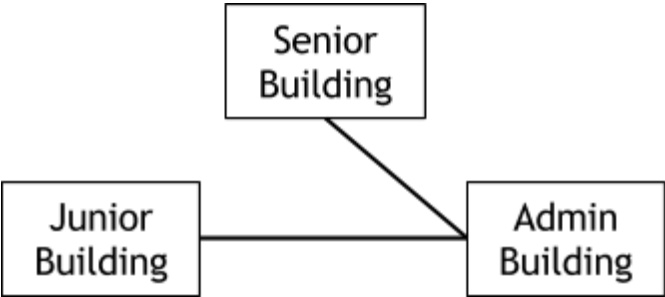<?php
    $servername = "localhost";
    $username = "username";
    $password = "password";
    //Create connection
    $conn = mysqli_connect (_____, $username, _____);
    // Check connection
    If _____{
        die("Connection failed: " . mysqli_connect_error());
    }
    //Create database
    $sql = "_____DATABASE myDB";
    if(mysqli_query($conn, _____))
    {
        echo "Database created successfully";
    }
    else
    {
        echo "Error creating Database";
        mysqli_error($conn);
    }
    mysqli_close(_____);
?>
```

Ans	`$servername`
	 `$password`
	 `!$conn`
	 `CREATE`
	 `$sql`
	 `$conn`

Ans	*(1 Mark for each correct value - any three)* *Note:* *Full 2 marks to be awarded, if the student mentions ERROR in line* `     if (mysqli_query($conn, _____ ))`

	(e)	Write PHP code to set a cookie named "country" and value "India". The cookie should expire after 2 days. Also display the values stored in $_COOKIE.	3

| Ans | ```php
<?php
    setcookie("country", "India", time()+(86400 * 2);
    echo "The value is :" . $_COOKIE["country"];
?>
```
**OR**
```php
<?php
 $cookie_name = "user";
 $cookie_value = "exam" ;
``` |
|---|---|

		```php setcookie($cookie_name, $cookie_value, time() + (86400 * 2)); echo " value is :" . $_COOKIE[$cookie_name]; ?> ```	
		(1 mark for the setcookie function) *(½ mark for appropriate name)* *(1 mark for appropriate value)* *(½ mark for setting expire time)* *(1 mark for displaying the cookie)*	
6		Answer the following questions based on JavaScript	
	(a)	With the help of suitable example, differentiate between global and local variable	**2**
	Ans	Variables **declared inside any function/method** are called local variables.Their **scope is limited** within the function, they are declared. They expire as soon as the function ends. Variables **declared outside any function/method** are called global variables.They can be **accessible by any function and any script in the web page.** They **live as long as application or web page lives.** Variables created **without the keyword var, are always global** , even if they are created inside a function.	
		(2 Marks for any one correct differentiation point between the two) *OR* *(1 Mark if only one of the variable type is explained)*	

	(b)	Give the output of the following set of statements:
		`<SCRIPT LANGUAGE="JavaScript">`
		`var car[3];`
		`count = 0;`
		`for(i = 2; i>=0;i--)`
		`{`
		    `car[i] = i + count;`
		    `document. write (car[i]);`
		    `count = count + 1;`
		`}`
		`</SCRIPT>`
			2

	Ans	222	
		(Full 2 Marks for writing 222) *OR* *(1 Mark for writing single value 2)* *Note:* *If the student writes ERROR in question - Full 2 Marks to be awarded*	
	(c)	Rewrite the above code using do-while-loop without effecting the output	**2**
	Ans	```javascript <SCRIPT LANGUAGE="JavaScript"> var car[3]; OR var car = [ ]; count = 0; i=2; do { car[i] = i + count; document. write (car[i]); ```	

```
    count = count + 1;
    i--;
}while(i>=0);
</SCRIPT>
```

(1 Mark for appropriate placement of do)
(1 Mark for appropriate placement of while)

(d)	Create a form that contains a list of mail services as shown below Select a location from the list Write the HTML code for creating the form and the embedded JavaScript code to open the corresponding website in a new window on the selection of any list item. Go to Yahoo!! Link to http://www.yahoo.com Go to Hotmail!! Link to http://www.hotmail.com Go to Rediff!! Link to http://www.rediff.com	**4**

Ans
```
<HTML>
<HEAD>
<TITLE>SELECT LOCATION</TITLE>
<SCRIPT LANGUAGE="JavaScript">
function Open()
{
  if (document.f1.list1.selectedIndex==0)
     document.location = "http://www.yahoo.com";
  else if (document.f1.list1.selectedIndex==1)
     document.location = "http://www.hotmail.com";
  else if (document.f1.list1.selectedIndex==2)
     document.location = "http://www.rediff.com";
}
</SCRIPT>
</HEAD>
<BODY>
Select a location from the list
<FORM NAME="f1">
    <SELECT onChange="Open()" NAME="list1" SIZE=3>
    <OPTION>Go to Yahoo!</OPTION>
    <OPTION>Go to Hotmail!</OPTION>
    <OPTION>Go to Rediff!</OPTION>
    </SELECT>
</FORM>
</BODY>
</HTML>
```

(½ Mark for function Open())
(1 Mark for appropriately using if statement)
(½ Mark for referring to appropriate reference of selectedIndex)
(½ Mark for assigning document.location to the appropriate web addresses)
(½ Mark for correct use of form tag)
(½ Mark for calling function Open() in SELECT)
(½ Mark for correct use of OPTION)

Note:

		Ignore the extra HTML code	1
7		**Answer the following questions based on communication and network concepts**	
	(a)	Compare proprietary and open Source Software	**1**
	Ans	The term **open source** refers to **software** whose **source** code is freely available on the Internet; by contrast, the **source** code for **proprietary** commercial **software** is usually a closely guarded secret.	
		(1 Mark for any one correct differentiation point between the two) *OR* *(½ Mark if only one of the software type is explained)*	
	(b)	Write any two points of difference between MAC address and IP Address	**2**
	Ans	*MAC Address* ● This is the hardcoded 48-bit (6 byte) address, burned into the ROM of the NIC (Network Interface Card) by the manufacturer or vendors. ● They are expressed as six pairs of hexadecimal digits (12 hexadecimal digits)and can not be changed. *IP Address* ● IP Address works at the network layer of OSI model ● This is a logical address (and not the embedded hardware address by vendors IP address may change each time you connect with the Internet.	
		(1 Mark for writing about MAC Address) *(1 Mark for writing about IP Address)* Note: Full **2 Marks** to be awarded to all the students, who have only written about IP address or given only example of IP address.	
	(c)	Compare BUS topology with STAR topology of Network	**2**
	Ans	Bus Topology: It is a specific type of topology, in which all the nodes/devices are connected to a single cable. Star Topology: It is a type of topology, in which each node/device is connected with the help of independent cable. 	
		(1 Mark for appropriate comparison) *OR* *(½ Mark for Defining/illustrating Bus Topology)* *(½ Mark for Defining/illustrating Star Topology)*	
	(d)	Explain the following term: (i) Firewall (ii) Cyber Law	**1**

Ans	A firewall is a network security system that monitors and controls the incoming and outgoing network traffic. Cyber law law is a term that encapsulates the legal issues related to use of the Data/information/Internet.	
	(½ Mark for appropriately defining Firewall) *(½ Mark for appropriately defining Cyber Law)*	
(e)	Arunodaya school is setting up their new campus in Mumbai. You as a network expert have to study the given below and answer the following questions	

Physical locations of the buildings of school:

Building to Building distances are as follows

Admin to Senior	60m
Admin to Junior	120m
Junior to Senior	70m

Each of the above building has following number of computers:

Junior	60
Senior	50
Admin	120

(i)	Suggest and draw the layout for a network, with proper justification to connect all the building	**1**
Ans		
	(1 mark for correct cable layout)	
(ii)	Suggest the most appropriate building to house the server with proper justification.	**1**
Ans	Admin as it has maximum number of computers	
	(½ mark for correct block name and ½ mark for justification)	

	(iii)	What type of network out of following is formed by connecting the computers of these buildings?
		    a. LAN
		    b. MAN
		    c. WAN
			1

	Ans	LAN	
		(1 mark for correct network type)	

	(iv)	Which wireless channel should be used to connect this school with their other branch in Dubai
		    a. Infrared
		    b. Microwave
		    c. Satellite
			1

	Ans	Satellite	
		(1 mark for correct channel name)	