

UNIT I (NETWORKING AND OPEN STANDARDS)

1. What is the purpose of Modem in network?

Ans. It modulates / converts a digital signal into analog signal and vice versa.

2. Gandharav is confused about Wi-Fi. Whether it is a

(i) type of network

(ii) type of network cable

(iii) set of popular technologies and standards for wireless computer networking

(iv) set of computer programs that help people log in to internet.

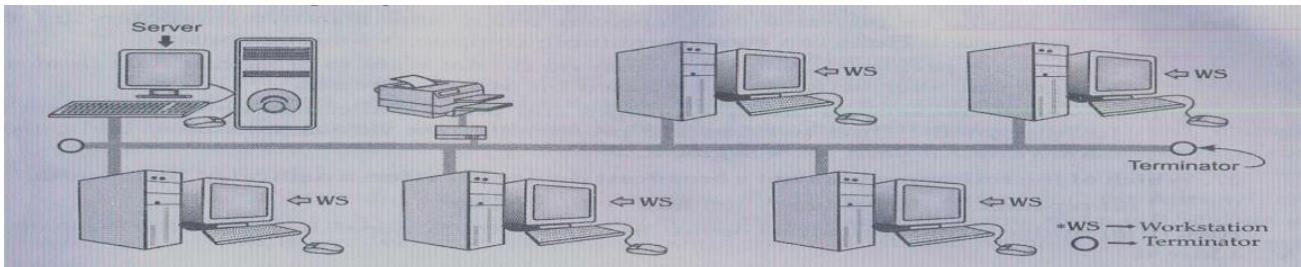
Ans. (iii) set of popular technologies and standards for wireless computer networking

3. Smith is confused as he is unable to find the name of a network of computers and other devices that is confined to a relatively small space – an office or a school campus etc. Help him to do that.

Ans. LAN (Local Area Network)

4. Draw a network layout of bus topology to connect 5 client computers and 1 server computer.

Ans:



5. Two neighborhood schools at a distance of 120 meters from each other decide to join their LANs using UTP cable so that they can share their e-learning resources. But after joining their LANs they are not able to share the resources due to loss of signal in-between. Which device should they use so that signal is amplified in-between.

Ans. Repeater

6. What do you understand by terms cookies?

Ans. Cookies also known as browser cookies or tracking cookies are small often encrypted text files. Cookies are created when a user's browser loads a particular website. The website sends information to the browser which then creates a text file.

7. Identify the following devices:

(i) A device that is used to connect different types of networks. It performs the necessary translation so that the connected networks can communicate properly.

(ii) A device that converts data from digital signals to analog vice versa.

Ans. (i) Router (ii) Modem

8. List two measures to secure a computer network.

Ans. **Authorization** : Authorization confirms the service requestor's credentials.

Authentication : Authentication ensures that each entity involved in using a web service- the requestor, the provider etc. – is what it actually claims to be.

Some other network security measures are: Encrypted smart cards, Biometric systems and firewall.

9. Distinguish between LAN and WAN.

Ans.

	LAN	WAN
Stands For	Local Area Network	Wide Area Network
Covers	Limited geographical area within an organization or campus only	Very large geographic Area
Example	Network in an office building.	Internet
Ownership	Single person or organization	Collective or distributed ownership.

10. Name two threats to security in a network. What is the role of Firewall in Network security?

Ans. Threats to security in a network:

- Virus / Malicious software.
- Denial of service (DoS) attack
- Snooping
- Eavesdropping

Role of firewall in Network security:

A Firewall permits only that data to enter or leave a computer/network for which permissions have been granted by the computer / network administrator.

11. Write one advantage and one disadvantage of Open Source software over Proprietary software.

Ans. Advantages of Open Source software over Proprietary software:

- Free to use, distribute and modify.
- No dependence on the developer for updates, support and fixes.
- Uses Open Standards

Disadvantages of Open Source software over Proprietary software:

- Lack of Software Support
- Generally low security.

12. Which protocol lets you log onto remote machine and run specific application there?

Ans. **Telnet (Terminal emulation protocol)** enables an internet user to log on to a remote computer or network and use it as if it were under his or her direct control. Telnet is a member of TCP/IP family of internet protocols and allows communication with any computer linked over the internet even if it does not support TCP/IP specifications.

13. Define the term Font and write briefly about its categories.

Ans.

Font refers to a set of displayable text characters called glyphs, having specific style and size.

There are two categories of font: **True Type Font** and **Open Type Font**.

True Type Font: It is developed by Apple and licensed to Microsoft. It is 8 bit font which

is compatible with Microsoft Windows and MAC OS.

Open Type Font: It is the extension of the True Type Font Format which is 16 bits font

and support 65536 characters (Unicode characters).

14. Read the given activities carefully and mention in front of the activity whether that activity is snooping or eavesdropping:

(i) Getting someone's login information by casually watching what he/she is typing.

(ii) Setting up unauthorized parallel telephone lines

(iii) Installing some software/hardware which captures the data while on its way.

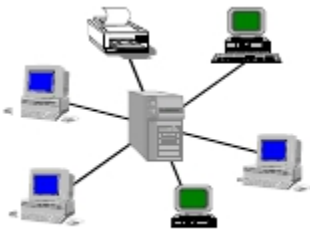
(iv) Reading the files on someone's computer in an unauthorized manner.

Ans: (i) Snooping (ii) Eavesdropping (iii) Eavesdropping. (iv) Snooping.

15. Give an advantage of using Star topology over Bus topology. Show a network layout of star topology to connect 5 computers.

Ans. In star topology, Failure of one node or link doesn't affect the rest of network whereas

in the bus topology, if the network cable breaks, the entire network will be down.



16. What is MAC address? What is the difference between MAC address and an IP address?

Ans. A Media Access Control address (MAC address) is a unique identifier assigned to most network adapters or network interface cards (NICs) by the manufacturer for identification, and used in the Media Access Control protocol sub-layer.

Difference between MAC address and an IP address:

- (i) MAC address is unique to each network interface card while an IP address is usually replaced.
- (ii) An IP address reveals which element on which network it is; while the same cannot be extracted from a MAC address.
- (i) IP address consists of four parts, all numerics separated by dot (.), whereas; MAC address has six parts, consist of numbers and alphabets separated by colon (:)

17. Explain the following terms:

(i) Linux (ii) FSF

Ans. Linux – Linux is a popular operating system. It is an example of free software and open source development. It is not only freely available for use, but also its code is freely available for use and modification and for redistribution. It was originally written by Linus Trovals.

FSF – FSF stands for Free Software Foundation. FSF is a non-profit organization created for the purpose of supporting free software movement.

18. What is UNICODE? Name one Indian language, which is supported by UNICODE.

Ans. Unicode is intended to be a universal character set supporting every written script used in the world. It is a character encoding standard developed by the Unicode consortium. The aim of the standard is to provide universal way of encoding characters of any language, regardless of the computer system or platform, being used. Devanagari is supported by UNICODE.

19. Mr. Jayanto Das is confused between shareware and open source software. Mention at least two points of differences to help him understand the same.

Ans. Shareware is a type of software, which is available for a user with a right to redistribute for a certain period. It means officially the free use of software with a right to redistribute copies to others, available only for a few days. Thereafter, license fee is to be paid. Whereas; Open Source Software are those softwares, whose source codes are available openly to the users. The users can modify and redistribute them without any restriction and can use it for unlimited time.

note:- you have to underline the keywords

20. How is co-axial cable different from optical fiber cable?

Ans. A co-axial cable consists of a solid core wire surrounded by foil or wire shield each separated by some plastic insulator. The inner core wire carries the signals and the outer wire shield provides the ground.

Whereas an optical fiber cable consists of a thin glass or plastic strands, which are capable of carrying light signals from a source at one end to another end. The main advantage of optical fiber over other cables is their complete immunity to noise and fast speed.

UNIT II(PROGRAMMING IN JAVA AND WEB APPLICATION DEVELOPMENT)

1. Write HTML code to set background image of a document.

Ans. <BODY BACKGROUND= "CLOUDS.JPG">

2. Rewrite the following Java code after underling the corrections made.

int x = = 0;

int n= Integer parseInt(Jlabel1.getText);

Ans. int x=0;

int n= Integer parseInt(Jlabel1.getText());

3. Ms. Kiran has developed a Java application for a restaurant billing, in which check boxes and text fields are made on form. Items are shown through check boxes. Selecting check box displaying corresponding text fields. Name the property which Kiran should use to perform the same.

Ans. Ms. Kiran should set **visible** property of jTextField as true.

jTextField.setVisible(true);

4. What is the purpose of break and continue statement in a loop?

Ans. **break** statement is used to terminate the loop whereas continue statement is used to skip the current iteration and take the iteration value.

5. What is XML? How is it different from HTML?

Ans. XML is extensible markup language.

HTML	XML
Both container as well tags are available	Only container tags are supported in XML
It is not case sensitive	It is case sensitive
All tags are predefined	No predefined tag is available in XML. Only user defined tags are supported.

6. What will be the content of jTextField1 and jTextField2 after executing the following code:

String st="New to Information Technology";

jTextField1.setText(st.replace("Technology","Practices"));

jTextField2.setText(st.substring(7));

Ans. New to Information Practices

Information Practices

- 7. While working in netbeans ,ranjeeta included a listbox in the form.now she want the list of her friend's names to be displayed in it .which property of listbox control should she use to do this?**

Ans. Ranjeeta should use **model** property to add items in list box.

- 8. What is the purpose of default clause in a switch statements ?**

Ans. When none of the case in switch statement will match, control will transfer to **default** clause.

- 9. What is overridden method (in context of Inheritance)**

Ans. When a derived class has a function with same name and signatures as in the base class, it is known as method overriding.

- 10. Write the purpose of the following statement:**

```
jTextField1.setText("Informatics".Substring(1,5));
```

Ans.It will display: **nfor**

- 11. A phone number , consisting of 10 digits, is stored in string variable strphone. Now it is required to store this phone number in a Long type variable longPhone. Write a Java statement to do this.**

Ans. Long longPhone= Long.parseLong(strphone);

- 12. Which HTML tags are used for making a table and adding rows in a HTML document?**

Ans. **<TABLE>** for making table and **<TR>** to add rows in the table.

- 13. How is tag different from tag of HTML?**

Ans. **** is numbered (ordered) list. **** is bulleted (unordered) list.

- 14. What will be the initial value of an object reference which is defined as an instance variable?**

Ans.**null**

- 15. While working in NetBeans, Ms Khorana wants to display 'Pass' or 'Needs to reappear' message depending on the marks entered in JTextField. Help her to choose the more appropriate statement out of 'if statement' and 'switch statement'.**

Ans. Mskhorans should use **if** statement. **if** statement can manage equality as well as non equality based conditions whereas; switch statement can manage only equality based conditions.

16. How one can make a Text Field un-editable on a JFrame?

Ans. `(jTextField1.setEditable(false);`

17. Given a string object namely subject having value as "12" stored in it. What will be the result of following code?

`JOptionPane.showMessageDialog(null, " " + (subject.length() + Integer.parseInt(subject)));`

Ans. 14

18. Given a string object namely subject having value as "12" stored in it. What will be the result of following code?

`JOptionPane.showMessageDialog(null, " " + subject.length() + Integer.parseInt(subject));`

Ans. 212

19. What will set as text of field JTF as per following statements?

`JTF.setText('A' + 'a');`

Ans. 162

20. What will set as text of field JTF as per following statements?

`JTF.setText("A" + 'a');`

Ans.Aa

21. Which keyword is used to call Parent Class property in a Child Class?

Ans keyword **extends** is used to call Parent Class property in a Child Class.

22. Which HTML tag is used to draw a Horizontal rule?

Ans<HR>

23. What are abstract classes?

Ans. **abstract** class is that class which cannot be instantiated and works as foundation class.

24. What are abstract methods?

Ans.An abstract method is that method which has only declaration and no definition.

25. Which property is used to add items in listbox at design time?

Ans.model property.

26. Change the following code using conditional (ternary) operator without affecting the output:

```
int big;
int A=Integer.parseInt(jTextField1.getText());
int B=Integer.parseInt(jTextField2.getText());
if(A>B)
big=A;
else
    big=B;
jTextField3.setText(""+big);
```

Ans. int big;
int A=Integer.parseInt(jTextField1.getText());
int B=Integer.parseInt(jTextField2.getText());
big= (A>B)? A:B;
jTextField3.setText(""+big);

27. Write return type of method toUppercase() and sqrt() ?

Ans.Return type of **toUppercase()** is **String** and return type of **sqrt()** is **double**

28. What is an Interface?

Ans. An **interface** is a collection of constants (final variables) and abstract methods. Keyword **interface** is used to declare an interface.

29. How many times does the following loop execute?

(Entry controlled or Exit Controlled)
inti = 3, n = 0; while (i< 4) {n++ ; i-- ;}

Ans.Infinite times.

30. Which method is used to determine which index has been selected in a list?

Ans. jList1.getSelectedIndex();

31. Which property is set to add an item in a ComboBox control at design time?

Ans. **model** property.

32. Explain conditional operator of Java along with syntax.

Ans. Conditional operator (?) also known as Ternary operator (?) works on three operands. It can be used in place **if else** statement. This operator is used to check a condition and produce logical result; either True or False. The syntax is:

Var= condition ? expression1 : expression2;

33. What is return type of method pow() and toLowerCase() ?

Ans Return type of method pow() is **double** and return type of method

toLowerCase() is

String.

34. What is Container control? Give example.

Ans. Container control can contain other child controls in it. e.g. **JPanel**.

35. Write any two properties of a Constructor function.

Ans. Constructor function

36. What will be displayed in JTextArea1 after the execution of the following code

```
int G= 7;
do
{
    JTextArea.setText(Integer.toString(G--));
    G=G- 1;
}while (G>=4);
JTextArea.append("\n"+Integer.toString(G--));
```

Ans. 5
3

37. What will be the output of the following code fragment if the value of ch is

```
(i) opt = 'a'      (ii) opt= 'b'
switch(opt)
{
    case 'a': System.out.println("Mr. Smith");
    default: System.out.println("Mr. King");
              break;
}
System.out.println("Mr. Fisher");
```

Ans. (i) Mr. Smith
Mr. King
Mr. Fisher

(ii) Mr. King
Mr. Fisher

38. What will be the value of P and Q after execution of the following code?

```
int P,Q=50;
for(P=5;P<=7;P++)
{
    Q*= P;
}
JOptionPane.showMessageDialog(this,"P= "+P+ "\t"+
"Q="+Q);
```

Ans. P=8 Q=10500

39. Expand the term JVM. What is its use?

Ans. JVM stands for Java Virtual Machine. JVM is used to interpret the bytecode and execute.

40. Write any two points of difference between jTextField Control and JTextArea Control.

Ans. jTextField can hold single line of text whereas; JTextArea can hold multiple lines of text.

jTextField uses setText() method whereas; JTextArea uses setText() and append() methods.

Long Answer Questions

1. Blue Valley Public School has computerized its registration for class XI students. Given below is the data entry form for same.

Answer the following questions using Java NetBeans IDE.

The image shows a Java Swing window with a blue title bar and standard window controls. The window contains the following elements:

- Text Fields:**
 - `jTextField1` (labeled **Adno**)
 - `jTextField2` (labeled **Name**)
 - `jTextField3` (labeled **Total Fee**)
- Stream Selection:**
 - Four radio buttons: **Commerce**, **Arts**, **Med**, and **Non Med**.
 - One checkbox: **Computer**.
- Buttons:**
 - Initial**
 - Clear**
 - Calculate**
 - End**

Control Name	Controls	Description
Text field	<code>jTextField1</code>	To accept admission number of the student
Text field	<code>jTextField2</code>	To accept Name of the student
Text field	<code>jTextField3</code>	To display total fee of the student
Radio button	<code>jOptCom</code>	To choose Commerce subject
Radio button	<code>jOptArts</code>	To choose Arts subject
Radio button	<code>jOptMed</code>	To choose Medical subject
Radio button	<code>jOptNonMed</code>	To choose Non Medical subject
CheckBox	<code>jChkBox</code>	To enter information whether the computer is opted
Button	<code>jButton1</code>	To perform the different tasks which are mentioned below.
Button	<code>jButton2</code>	
Button	<code>jButton3</code>	
Button	<code>jButton4</code>	

(i) On clicking the initial button the jTextField1 and jTextField2 editable property should be set to false.

```
Ans. jTextField1.setEditable(false);  
      jTextField2.setEditable(false);
```

(ii) On clicking the Calculate button the jTextField1 and jTextField2 editable property should be set to true. The Total Fee is calculated on the basis of the following criteria:

Stream	Fee(Rs.)
Commerce	2500
Arts	2000
Medical	2900
Non-Medical	2800

The Fee should be displayed in jTextField2.

```
Ans. int fee;  
  
      jTextField1.setEditable(true);  
  
      jTextField2.setEditable(true);  
  
      if(joptCom.isSelected())  
  
          fee = 2500;  
  
      if(joptArts.isSelected())  
  
          fee = 2000;  
  
      if(joptMed.isSelected())  
  
          fee = 2900;  
  
      if(joptNonMed.isSelected())
```

```
fee = 2800;  
  
jTextField2.setText(" "+ fee);
```

(iii) If the student has opted for Computers Rs. 200 will be added to the Total Fee. The Total Fee should be displayed in jTextField3.

```
Ans. int Total_fee;  
  
int fee= Integer.parseInt(jTextField2.getText());  
  
if(jChkBox.isSelected())  
  
    Total_fee = fee+ 200;  
  
else  
  
    Total_fee = fee;  
  
jTextField3.setText(" "+ Total_fee);
```

(iv) On Clicking the End button the application will be closed.

```
Ans. System.exit(0);
```

2. Ms. Sheela works in a shopping mall. To calculate net payable amount she has developed the following GUI in NetBeans.

The shop accepts payments in three modes- Cash, Debit Card, Credit Cards. The discount given as per mode of payment is as follows-

Mode of payment	Discount
Cash	12%
Debit Card	Nil
Credit Card	8%

If the Member check box is checked then the customer gets an additional discount of 5% on net payable amount.

- (a) Write the code to make the textfields for Discount(txtDiscount) and Net Payable (txtNetPayable) uneditable.

Ans. `txtDiscount.setEditable(false);`

`txtNetPayable. setEditable(false);`

- (b) Write code to do the following-

- (i) When Calculate button is clicked the discount and net payable amount is calculated as per the given criteria and displayed in discount and net payable text boxes.

Ans. (i) `double disc=0, net_amt=0;`

`int qty= Integer.parseInt(jTextField1.getText());`

`float price= Float.parseFloat(jTextField2.getText());`

```

float amt= qty*price;
if(jRadioButton1.isSelected())
    disc= 0.12*amt;
else if((jRadioButton2.isSelected()))
    disc=0;
else if((jRadioButton3.isSelected()))
    disc=0.08*amt;
net_amt= amt-disc;
if(jCheckBox1.isSelected())
    net_amt= net_amt- 0.05* net_amt;
jTextField3.setText(""+disc);
jTextField4.setText(""+net_amt);

```

(ii) When Clear button is clicked all the text boxes should be clear.

Ans txtQty.setText(" "); txtPrice. .setText(" ");
 txtDiscount.setText(" "); txtNetPayable. setText(" ");

(c) Close the application when Exit button is pressed.

Ans. System.exit(0);

- 3. Read the following case study and write a java code to answer the questions that following.**
Manager of Bachat Bank has developed a java form for finding EMI to be paid by customers against repayment of loan.

Loan interest rates are(Yearly) -

Loan Type	Interest Rate
Car Loan.	14.5 %
Personal Loan	13.25 %

Education Loan**11.75 %**

Processing charges are RS 500.

Name of the various objects in jframe are:

Object Type	Object Name	Description
JFrame	JFrmEmiCalc	Main Form
Combo Box	jcmbYears	To select Years for Loan
Text Box	jtxtLoanAmt	To enter loan amount
	jtxtProcCharge	To enter processing charge
	jtxtRate	To enter interest rate
	jtxtEMI	To display EMI payable
Option Button	rbtnCar	To select loan type as Car Loan
	rbtnPersonal	To select loan type as Personal Loan
	rbtnEducation	To select loan type as Education Loan
Command Button	jcmbCalcEMI	To calculate payable amount
	jcmbClear	To clear the entered values
	jcmbExit	To quit form application

- (a) Initially loan type should be set to Car Loan, jtxtRate should be disabled

Ans. `rbtnCar.setSelected(true);`

`jtxtRate.setEnabled(false);`

- (b) If loan amount is less than or equal to 0. It should display an error message "Invalid Amount" and cursor should point to jtxtLoanAmt.

Ans. `public sub jtxtLoanAmtFocusLost(java.awt.event.FocusEvent evt)`

{

`Int Lamt= Integer.parseInt(jtxtLoanAmt.getText());`

`If(Lamt<=0)`

{

```

        JOptionPane.showMessageDialog(null,"Invalid Amount");
        jtxtLoanAmt.requestFocus();
    } }

```

(c) **When the user clicks the *CmdCalcEMI* button, the total payable EMI should be calculated and displayed in the jtxtEMI text box. To calculate EMI, firstly calculate compound interest using formula $ci=p*(1+r/100)^t$. Add compound interest to loan amount and divide by time (in months).**

```

Ans. double p= Double.parseDouble(jtxtLoanAmt.getText());
    double prchgs , intrate ;
    int t=Integer.parseInt(jcmbYears.getSelectedItem().toString());
    if(rbtCar.isSelected())
        intrate= 14.5;
    else if(rbbtnPersonal.isSelected())
        intrate= 13.25;
    else if(rbbtnEducation.isSelected())
        intrate=11.75;
    prchgs=500;
    double CI= p* Math.pow((1+intrate/100) , t) ;
    double EMI= (CI+p) /(t*12);
    jtxtRate.setText(""+ intrate);
    jtxtProcCharge.setText(""+prchgs);
    jtxtEMI.setText(""+ EMI);

```

d) Write the code for *jCmdExit* button to stop the application.

```

Ans. System.exit(0);

```

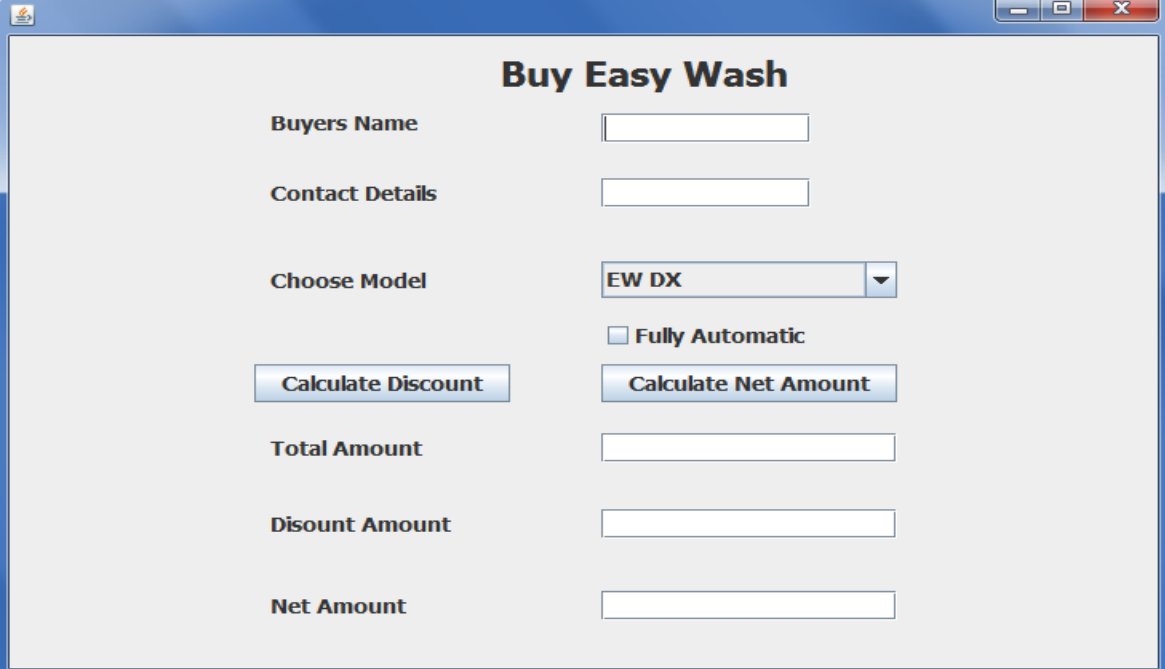
(e) **Write code for *jCmdClear* command button to clear all the text boxes and option buttons.**

```

Ans. jtxtRate.setText("");
    jtxtProcCharge.setText("");
    jtxtEMI.setText("");
    jtxtLoanAmt.setText("");
    rbtCar.setSelected(false);
    rbbtnPersonal.setSelected(false);
    rbbtnEducation.setSelected(false);

```

4. Bahadur Chand and company is selling various models of its washing machine brand Easy Wash at discounted prices on the New Year. The company plans to computerize its Billing system for which a programmer is required to make the following GUI interface to calculate the Discount Amount & Net Amount to be paid by the buyer as shown below:



Buy Easy Wash

Buyers Name

Contact Details

Choose Model

☐ Fully Automatic

Total Amount

Discount Amount

Net Amount

Swing Control	Control Name	Function
jTextField1	txtName	To store Buyer's Name
jTextField2	txtContact	To store Buyer's Contact No.
jTextField3	txtTotal	To display Total Amount
jTextField4	txtDiscount	To display Discount Amount
jTextField5	txtNet	To display Net Amount
jComboBox1	cmbModel	To choose a Model
jCheckBox1	chkAuto	To choose an Automatic Machine
jButton1	btnCalDisc	To calculate Discount
jButton2	btnCalNet	To calculate Net Amount

The cost of each Model of Easy Wash and its discount percentage on the cost is as follows:

Model Name	Cost in Rs.	Discount
EW SX	16000	10%
EW DX	12000	12%
EW MX	22000	8%

An additional amount of Rs. 4000/- is charged (after calculating discount) if the customer if the customer wants to take the Fully Automatic machine of any model.

Consider the given interface and write the Java code for the following:

(a) The textfields for Discount Amount (txtDiscount) and Net amount (txtNet) are uneditable and "Calculate Net Amount" button (btnCalNet) is disabled.

```
Ans. txtDiscount.setEditable(false);
    txtNe.setEditable(false);
    btnCalNet.setEnabled(true);
```

(b) When "Calculate Discount" button (btnCalDisc) is clicked ,calculate and display the total amount and discount in the corresponding textfields (txtTotal & txtDiscount) as per the given criteria and enable the "Display Net Amount" button (btnCalNet).

```
Ans. String model= (String) cmbModel.getSelectedItem();
    double price=0.0,discout=0.0;
    if(model.equals("EW SX")
        { price= 16000; discout= 0.10* price;}
    if(model.equals("EW DX")
        { price= 12000; discout= 0.12* price; }
    if(model.equals("EW MX")
        { price= 22000; discout= 0.08* price; }
    If(chkAuto.isSelected())
        price=price + 4000;
    txtTotal.setText(" "+ price);
    txtDisccout.setText(" "+ discout);
    btnCalNet.setEnabled(true);
```

(c) When "Calculate Net Amount" button (btnCalNet) is clicked, the Net amount should be displayed in textfield txtNet.

```
Ans. double price= Double.parseDouble( txtTotal.getText());
    double discout= Double.parseDouble(txtDisccout.setText());
    double net= price - discout;
    txtNet.setText(" "+ net);
```

5. Read the following case study and answer the questions that follow:

Mr.Basu of MEGA MALL decided to computerize the billing department. The accounts manager at MEGA MALL is creating the

billing software to generate the bill during the sale period. A new bill is generated for each item sold. The discount is given based on the item category. An additional discount of 5% is given to the MEGA MALL card holders. The following is data entry screen used at the MEGA MALL:

The screenshot shows a Java Swing window titled "MEGA MALL". Inside the window, there is a "Bill No" label. Below it is a "Category" group box containing three radio buttons: "Men's", "Women's", and "Kid's". To the right of the category group is a "Card Holder" checkbox. Further right, there are four text input fields: "Item", "Price", "Discount", and "Final Price". At the bottom of the window, there are four buttons: "Test Data", "Calculate", "Clear", and "EXIT". The window is running on a Windows operating system, as indicated by the taskbar at the bottom.

The list swing controls for the above is as follows:

Object Type	Object Name	Description
JFrame	MEGA MALL	The main form
JPanel	Category	To display different items category
JRadioButtons	MenRB	To select Men's Category
	WomenRB	To select Women's Category
	KidRB	To select Kid's Category
JButtons	CalJB	To calculate discount and final price
	ClearJB	To clear all JTextFields
	ExitJB	To exit from the application
	TestJB	To test data validity
JTextFields	txtItem	To enter item quantity
	txtPrice	To enter item price
	txtDiscount	To display discount
	txtFA	To final amount
JCheckBox	CHCheck	To check card holders

(a) Write the code for the ClearJB Radio button to clear all the JTextFields.

```
Ans.    txtItem.setText("");
        txtPrice.setText("");
        txtDiscount.setText("");
        txtFA.setText("");
```

(b) **Write the code for the TestJB button to ensure that the user does not enter a negative or a zero value in txtItem JTextField. If a negative or a zero value is entered that txtItem should be made blank and a warning message should be displayed through a JOptionPane.**

```
Ans.int qty =Integer.parseInt(txtItem.getText());
if(qty<=0)
{
txtItem.setText("");
JOptionPane.showMessageDialog(nill,"Invalid Data");
}
```

(c) **Write the code for the CalJB button to display the discount and final amount in the txtDiscount and txtFA JTextFields respectively. Note that final price is calculated as (amount – discount) and the discount is calculated based on the category and amount according to the following table.**

Category	Amount	Discount
Men's	<10000	30%
	>=10000	50%
Women's	<8000	40%
	>=8000	50%
Kid's	<5000	20%
	>=5000	30%

Also remember to given an additional 5% discount for membership card holders i.e. if the CHCheck JCheckBox is checked.

```
Ans.float price=Float.parseFloat(txtPrice.getText());
int qty =Integer.parseInt(txtItem.getText());
float amt= qty*price;
double Disc=0;
if(MenRb.isSelected())
{
if(amt<10000)
Disc= 0.30*amt;
else
Disc= 0.50*amt;
}
else if(WomenRb.isSelected())
{
if(amt<8000)
Disc= 0.40*amt;
else
```

```

        Disc= 0.50*amt;
    }
    else if(KidRb.isSelected())
    {
if(amt<5000)
Disc= 0.20*amt;
    else
        Disc= 0.30*amt;
    }
    if(CHCheck.isSelected())
        Disc=Disc+ 0.05*amt;
    double final_amt= amt-Disc;
    txtDiscount.setText(""+ Disc);
    txtFA.setText(""+final_amt);

```

6. Read the following case study and answer the questions that follow

The FOR U SHOP has computerized its billing. A new bill is generated for each customer. The shop allows three different payment modes. The discount is given based on the payment mode. The following is the data entry screen used at to generate the bill.

The list of controls for the above form is as follows :

Controls	Control Name	Description
Frame	FrmDiscount	The main frame
Text Field	TxtAmt	To input the total Shopping Amount
	TxtDisc	To display Discount Amount
	TxtNet	To display Net Price
Radio Button	OptCash	To select mode of payment as cash
	OptCheque	To select mode of payment as cheque
	OptCredit	To select mode of payment as credit card

Ok Button	CmdCalc	To calculate Discount and Net Price
	CmdClear	To clear all Text Fields
	CmdExit	To exit from the application

Write the code for the CmdClear Button to clear all the Text Fields.

- (a) Ans. TxtAmt.setText("");
 TxtDisc.setText("");
 TxtNet.setText("");
- (b) **Write the code for formWindowActivated event of FrmDiscount so as to**
(i) disable the TxtDisc and the TxtNet Text Fields
 Ans. TxtDisc.setEnabled(false);
 TxtNet.setEnabled(false);
(ii) set default choice in the Radio Button as Cash
 Ans. OptCash.setSelected(true);
- (c) **Write the code for the CmdCalc Button to display the Discount Amount and Net Price in the TxtDisc and the TxtNet Text Fields respectively. Note that Net Price is calculated as Shopping Amount – Discount Amount and the discount is calculated based on the mode of payment and the total shopping amount according to the following table.**

Mode of payment	Shopping Amount	Discount
Cash	< 10000	20 %
	>= 10000	25 %
Cheque	< 15000	10 %
	>= 15000	15 %
Credit Card	< 10000	10 %
	>= 10000	12 %

```

Ans. double amt=Double.parseDouble(TxtAmt.getText());
double disc;
if(OptCash.isSelected())
{
    if(amt<10000)
        disc=0.20*amt;
    else
        disc=0.25*amt;
}
else if(OptCheque.isSelected())
{
    if(amt<15000)
        disc=0.10*amt;
    else
        disc=0.15*amt;
}
else if(OptCredit.isSelected())
{
    if(amt<10000)
        disc=0.10*amt;
    else

```

```
        disc=0.12*amt;  
    }  
    double net=amt-disc;  
    TxtDisc.setText(""+disc);  
    TxtNet.setText(""+net);
```

UNIT III (RDBMS)

1. What is MySQL?

Ans. MySQL is an Open Source Relational Database Management System (RDBMS) that uses

Structured Query Language (SQL) for adding, accessing and managing contents in a database. It is available free of cost.

2. While using pattern matching, what is difference between "_" (underscore) and "%" wildcard symbols?

Ans. "_" (Underscore) is used to represent a single character whereas "%" is used to represent any sequence of zero or more characters.

3. How Primary key constraint is different from Unique key constraint?

Ans. In a table, there can be only one Primary key constraint whereas; it may have more than one unique key constraint.

OR

Primary key constraint is used to identify a tuple (record) uniquely, cannot be null. Unique key constraint makes sure that duplicate values in a specified column are not accepted, however it may be null.

4. Define the term Composite key.

Ans. Primary key formed by combining more than one fields is called Composite Key.

5. What do you understand by degree and cardinality of a table?

Ans. Degree means number of columns (Attributes/ Fields) in a table.

Cardinality means number of rows (Tuples/ Records) in a table.

6. Rama is not able to change a value in a column to NULL. What constraint did she specify when she created the table?

Ans. She specified 'NOT NULL' constraint for that column while creating the table.

7. Distinguish between a primary key and candidate key with suitable example of each.

Ans. Candidate key is a column or group of columns that is suitable to be selected as primary key. A table can have multiple candidate keys but it can have only primary key.

Example: Assume a table student having columns

AdmNo, RollNo, Name, Address.

AdmNo and RollNo are candidate keys, anyone can be selected as primary key.

8. Distinguish between ALTER TABLE and UPDATE commands of MySQL.

Ans. ALTER TABLE command is used to modify the structure of a table. This command falls in DDL category. UPDATE command is used to make changes in the data stored in a table. This command falls in DML category.

9. Mention any two categories in which MySQL commands are broadly classified.

Ans. DDL – Data Definition Language

DML – Data Manipulation Language

TCL - Transaction Control Language

DCL – Data Control Language

10. Give two characteristics of Primary key.

- Ans.
- (i) It must contain a unique value for each row of data.
 - (ii) It cannot contain NULL values.

11. What happens when "ROLLBACK" command is issued in a transaction process?

Ans. The ROLLBACK command cancels transactions that have not yet already been saved to the database. It cancels transactions since the last COMMIT or ROLLBACK command was issued.

12. Name the function of MySQL used to give the location of first occurrence of a str2 in str1.

Ans. **INSTR(str1, str2)** function is used to give the location of first occurrence of a str2 in str1.

13. Write a MySQL command to display the names of tables available in currently opened database.

Ans. Show tables;

14. What is difference between SYSDATE() and NOW() functions in MySQL.

Ans. SYSDATE() shows the time of its own execution and NOW() shows constant time that is time of commands execution.

```
SELECT SYSDATE(), SLEEP (2), SYSDATE();
```

It will show different time before and after sleep statement

```
SELECT NOW(), SLEEP (2), NOW();
```

It will show same time before and after sleep statement that is time of command's execution

15. Monica has written the following query :-

```
SELECT * FROM EMP WHERE SALARY = NULL;
```

This query has some error(s). Write the correct query after removing the error(s).

Ans.

```
SELECT * FROM EMP WHERE SALARY IS NULL;
```

16. Explain the use of AS keyword with SELECT statement.

Ans. Keyword **AS** is used to give column alias that is descriptive heading to a column.

17. Write function which returns the character string by converting each character to lower case.

Ans. LCASE() or LOWER() function can be used to convert the string into lower case.

18. Which function returns the length of a string?

Ans. LEN() function returns the length of the string.

19. Bank accountant needs to change the last name of one of his customers in table Customer.

Which command should he use for this?

Ans. UPDATE command should be used.

20. What is difference between a where and having clause of SQL Select query?

Ans. Where clause is used to apply condition on individual rows and Having clause is used to apply on grouped data. Aggregate functions are used with Having clause to apply the condition.

21. Write the MySQL commands to open the database named TEST.

Ans.

```
USE TEST;
```

- 22. Write SQL command to show the names of tables starting with "ST" in database named as EMPLOYEE..**

Ans. `USE EMPLOYEE;
SHOW TABLES LIKE "ST%";`

- 23. Write SQL command which will not use BETWEEN clause and produce the same result as produced by the given following command:**

`SELECT * FROM BOOKS WHERE PRICE BETWEEN 350 AND 550;`
Ans. `SELECT * FROM BOOKS WHERE PRICE >= 350 AND PRICE <= 550;`

- 24. Write an alternate SQL command to produce the same result as that of the given command :**

`SELECT * FROM BOOKS WHERE PUBLISHER= 'BPB' OR
PUBLISHER='OXFORD' OR PUBLISHER= 'JPH';`
Ans. `SELECT * FROM BOOKS WHERE PUBLISHER IN('BPB','OXFORD','JPH');`

- 25. There is a column FEE in the table STUDENT. The following two statements:**

`SELECT COUNT (*) FROM STUDENT;
SELECT COUNT (FEE) FROM STUDENT;`

are giving different output as 12 and 9 respectively. What may be the possible reason?

Ans. There will be three **NULL** entries in column FEE.

- 26. Write SQL statement to extract the word "net" from the string "Internet Superhighway".**

Ans. `SELECT SUBSTR("Internet Superhighway",6,3);`

- 27. Write SQL command to display the position of "My" in the string "Enjoying MySQL".**

Ans. `SELECT INSTR("Enjoying MySQL","My");`

- 28. Write the output for the command: `SLEECT ROUND(754.89,-2);`**

Ans. 800

- 29. Table employee has four records and Table Dept has 3 records in it. Mr. Jain wants to display all information stored in both of these related table. He forgot to specify equi-join condition in the query. How many rows will get displayed on execution of this query?**

Ans. 12 (Twelve) rows will get displayed.

- 30. Write the UPDATE command to increase the commission.**

(Column name: COMM by 500 of all the Salesman who have achieved Sales (Column name ; SALES) more than 200000. The table's name is COMPANY.

Ans. UPDATE COMPANY SET COMM = COMM + 500 WHERE SALES > 200000;
OR

UPDATE COMPANY SET COMM = COMM + 500 WHERE SALES > 200000
AND JOB = "Salesman";

Long Answer Questions

- 1. Write a SQL command to create the following table 'MCA' with MNO as Primary key and Fee and Semester with NOT NULL constraints.**

TABLE: MCA

MNO	Name	Address	Join_DT	Fee	Semester	Grade
1001	ADITYA	B-4, DWARKA	2007-07-23	4500	I	A1
1234	KOMAL	SEC 5, R.K PURAM	2009-06-15	500	III	B2
5678	ANUSHIKA	B3/2, V.VIHAR	2008-06-22	7000	I	C1
9854	HIMANSHU	SEC 2, PUNA	2009-03-13	8000	II	B2
3265	MUMTA	123/A, MUMBAI	2013-02-17	4500	I	A2
4512	PRERNA	53/2, CHANDIGARH	2008-05-10	6500	III	C3
7645	AMIT	11/7, CHENNAI	2010-05-25	10000	II	B1
9054	SUMIT	117-N, DELHI	2008-3-27	10500	III	A2
8326	REKHA	56/E, AHMEDABAD	2012-04-12	7600	I	C2
7324	SAVITRI	73/C, FARIDABAD	2013-06-15	8700	I	C1

Write **SQL query for the following based on table 'MCA' (ref**

Question 82):

(i) To display Name, MNO of those students who joined after year 2010.

Ans. SELECT NAME, MNO FROM MCA WHERE YEAR(Join_DT)>2010;

(ii) To display all the information in Descending order of MNO.

Ans. SELECT * FROM MCA ORDER BY MNO DESC;

(iii) To add record with the following data:

8326, "AMIT", "OG2-8, MALVIYA NAGAR", "2010-07-12", 6700, "II", "A1"

Ans. INSERT INTO MCA VALUES (8326, "AMIT", "0G2-8, MALVIYA NAGAR", "2010-07-12", 6700, "II", "A1");

(iv) To count unique SEMESTER numbers in given table.

Ans. SELECT COUNT(DISTINCT SEMESTER) FROM MCA;

(v) To add new column REMARKS of data type VARCHAR of size 20.

Ans. ALTER TABLE MCA ADD REMARKS VARCHAR(20);

(vi) To change the FEE of AMIT from 10000 to 7000.

Ans. UPDATE MCA SET FEE=7000 WHERE NAME="AMIT";

2. Write SQL commands for the questions from (i) to (viii) on the basis of table HOSPITAL

TABLE: HOSPITAL

No.	Name	Age	Department	Dateofadm	Charges	Sex
1	Arprit	62	Surgery	2008-01-21	1300	M
2	Zarina	22	ENT	2007-12-12	1250	F
3	Kareena	32	Orthopedic	2008-02-19	1200	M
4	Arun	12	Surgery	2008-01-11	1300	M
5	Zubin	30	ENT	2007-01-12	1250	M
6	Ketaki	16	ENT	2008-02-04	1250	F
7	Ankita	29	Cardiology	2008-02-20	1800	F
8	Zareen	45	Gynecology	2007-02-10	1300	F
9	Kush	19	Cardiology	2008-01-13	1800	M
10	Shilpa	23	Nuclear Medicine	2008-02-21	1400	F

(i) To select all the information of patients of cardiology department

Ans. SELECT * FROM HOSPITAL WHERE DEPARTMENT="CARDIOLOGY";

(ii) To list the names of female patients who are in ENT department

Ans. SELECT NAME FROM HOSPITAL WHERE DEPARTMENT= "ENT" AND SEX= "F";

(iii) To list names of all patients with their date of admission in ascending order

Ans. SELECT NAME, DATEOFADM FROM HOSPITAL ORDER BY DATEOFADM;

(iv) To display patient's name, charges, age for only male patients.

Ans. SELECT NAME, CHARGES, AGE FROM HOSPITAL WHERE SEX= "M";

(v) To count the number of female patients

Ans. SELECT COUNT(*) FROM HOSPITAL WHERE SEX= "F";

(vi) To reduce the charges of male patients of cardiology department by 5%.

Ans. UPDATE HOSPITAL SET CHARGES=CHARGES-0.05*CHARGES WHERE SEX="M" AND DEPARTMENT= "CARDIOLOGY";

(vii) To display the departments existing in the Hospital table

Ans. SELECT DISTINCT DEPARTMENT FROM HOSPITAL;

(viii) To display records of those patients who were admitted in the year 2007

Ans. SELECT * FROM HOSPITAL WHERE YEAR(DATEOFADM)=2007;

3. Write SQL commands for the queries given from (i) to (iv) and (v) to(viii)write the output of the SQL commands based on a table LIBRARY shown below:

Table: LIBRARY

No.	Title	Author	Subject	Publisher	Qty	Price
1	Data Structure	Lipschute	DS	McGraw	4	217.00
2	DOS Guide	NORTRON	OS	PHI	3	175.00
3	Turbo C++	Robert Lafore	Prog	Galgotia	5	270.00
4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00
5	Mastering Windows	Cowart	OS	BPB	1	225.00
6	Computer Studies	French	FND	Galgotia	2	75.00
7	COBOL	Stern	Prog	John W	4	1000.00
8	Guide Network	Freed	NET	Zpress	3	200.00
9	Basic for Beginners	Norton	Prog	BPB	3	40.00
10	Advanced Pascal	Schildt	Prog	McGraw	4	350.00

(i) To display the title of all books with Price between 100 and 300.

Ans. SELECT TITLE FROM LIBRARY WHERE PRICE BETWEEN 100 AND 300;

(ii) To display Title and Author of all the books having type Prog and published by BPB.

Ans. SELECT AUTHOR,TITLE FROM LIBRARY WHERE SUBJET= "PROG" AND PUBLISHER= "BPB";

(iii) To display the list of all the books with price more than 130 in ascending order of Qty.

Ans. SLEECT TITLE,PRICE FROM LIBRARY WHERE PRICE>130 ORDER BY QTY;

(iv) To display the list of all books whose quantity is less than 4.

Ans. SELECT TITLE FROM LIBRARY WHERE QTY<4;

(v) Select MIN(Price) from Library;

Ans. 40

(vi) Select Sum(Price * Qty) from Library where Qty > 3;

Ans. 293740

(vii) Select Avg(Price) from Library where Qty < 4;

Ans. 143

(viii) Select Count(Distinct Publisher) from Library;

Ans.7

4. Consider the Table Shop given below .Write commands in SQL for (i)to (iv)and output for (v) to (vi)

SHOP

No	Shop_Name	Sale	Area	Cust_percent	Rating	City
1	West Side	250000	West	68.5	C	Delhi
2	Pantaloons	500000	South	80.5	B	Amritsar
3	Sir's & Her's	300000	North	90.8	A	Amritsar
4	Sports King	380000	North	88.0	A	Baroda
5	Adidas	NULL	East	90.5	NULL	Delhi
6	Big Bazar	300000	South	69.8	C	Delhi

(i) To display the Name and Sale of shops which are in the area North.

Ans. Select Shop_Name,Sale from Shop where Area="North";

(ii) To display list of all the shops with Sale>300000 in ascending order of Shop_Name.

Ans. Select * from Shop where Sale>300000 order by Shop_Name;

(iii) To display the city along with sum of sale in each City.

Ans. Select City, Sum(Sale) from Shop group by City;

(iv) To display Sale and incentive of all shops. Incentive to be calculated as 7% of Sale.

Ans. Select Sale, Sale*0.07 AS "Incentive" from Shop;

(v) Select Avg(Sale) from shop where City=' Delhi';

Ans. 275000

(vi) Select Count(Distint City) from shop;

Ans. 3

58. Write SQL Commands for (i) to (v) on the basis of table :

Table : FURNITURE

ID	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT_PERC
1	White Lotus	Double Bed	2002-02-23	3000	25
2	Pink feathers	Baby Cot	2002-01-29	7000	20
3	Dolphin	Baby Cot	2002-02-19	9500	20
4	Decent	Office Table	2002-02-01	25000	30
5	Comfort zone	Double Bed	2002-02-12	25000	30
6	Donald	Baby cot	2002-02-24	6500	15

7	Royal Finish	Office Table	2002-02-20	18000	30
8	Royal tiger	Sofa	2002-02-22	31000	30
9	Econo sitting	Sofa	2001-12-13	9500	25
10	Eating Paradise	Dining Table	2002-12-19	11500	25

(i) **To show all the information about the Baby cots from the furniture table.**

Ans. SELECT * FROM FURNITURE WHERE TYPE= "BABY COT";

(ii) **To list the itemname and net price of items from furniture table. Net price to be calculated by using appropriate fields.**

Ans. SELECT ITEMNAME, PRICE-DISCOUNT_PERC/100*PRICE AS "NET PRICE" FROM FURNITURE;

(iii) **To list itemname and type of those items, in which dateofstock is before 2002-02-01 from the furniture table in descending order of itemname.**

Ans. SELECT ITEMNAME, TYPE FROM FURNITURE WHERE DATEOFSTOCK< "2002-02-01" ORDER BY ITEMNAME DESC;

(iv) **To display itemname and dateofstock of those items, in which the discount percentage is more than 25 from the furniture table.**

Ans. SELECT ITEMNAME,DATEOFSTOCK FROM FURNITURE WHERE DISCOUNT_PERC>25;

(v) To modify the table by declaring ID as Primary Key.

Ans. ALTER TABLE FURNITURE ADD PRIMARY KEY(ID);

5. Write the SQL commands on the basis of following table "Scholars":

Adm_No	Name	Address	Join_DT	Fee	Semes ter	Grade
1256	ADITYA	B-4, DWARKA	2012-07-23	45000	I	A1
5678	AMIT	SEC 5, R.K PURAM	2014-06-15	35000	III	B2
1425	KARINA	B3/2, V.VIHAR	2013-06-22	26000	II	C1
8954	BIKRAM	SEC 2, PUNA	2012-03-13	75000	I	A2
1789	VIJAY	123/A, MUMBAI	2014-02-17	35000	II	B1
8376	GANESH	53/2, CHANDIGARH	2012-10-05	22000	III	C3
2938	ARUN	11/7, CHENNAI	2012-06-24	25000	II	B2
6498	TANU	117-N, DELHI	2011-05-25	32000	I	A1

5420	RAJAN	56-E, AHMEDABAD	2014- 02-30	4400 0	III	B2
8567	ANITA	73/C, FARIDABAD	2012- 08-22	3800 0	I	C2

(i) To display Name, Adm_No of those students who joined after year 2012.

Ans. SELECT NAME,ADM_NO FROM SCHOLARS WHERE YEAR(JOIN_DT)>2012;

(ii) To display all the information in descending order of Adm_No.

Ans. SELECT * FROM SCHOLARS ORDER BY ADM_NO DESC;

(iii) To add record with the following data:

8326, "ANKIT", "2013-10-25"

Ans. INSERT INTO SCHOLARS (ADM_NO,NAME,JOIN_DT) VALUES(8326, "ANKIT", "2013-10-25");

(iv) To count unique SEMESTER numbers in given table.

Ans. SELECT COUNT(DISTINCT SEMESTER) FROM SCHOLARS;

(v) To make Adm_No as Primary Key.

Ans. ALTER TABLE SCHOLARS ADD PRIMARY KEY(ADM_NO);

(vi) To change the FEE of VIJAY from 35000 to 30000.

Ans. UPDATE SCHOLARS SET FEE=30000 WHERE NAME= "VIJAY";

6. Consider the following table named "SOFTDRINK". Write command of SQL for (i) and (iv) and output for (v) to (vii).

Table : SOFTDRINK

DRINKCODE	DNAME	PRICE	CALORIES
101	Lime and Lemon	20.00	120
102	Apple Drink	18.00	120
103	Nature Nectar	15.00	115
104	Green Mango	15.00	140
105	Aam Panna	20.00	135
106	Mango Juice Bahaar	12.00	150

(i) To display names and drink codes of those drinks that have more than 120 calories.

Ans SELECT DNAME, DRINKCODE FROM SOFTDRINK WHERE CALORIES > 120;

(ii) To display drink code, names and calories of all drinks, in descending order of calories.

Ans: SELECT DRINKCODE, DNAME, CALORIES FROM SOFTDRINK ORDER BY CALORIES DESC;

(iii) To display names and price of drinks that have price in the range 12 to 18 (both 12 and 18 included).

Ans: SELECT DNAME, PRICE FROM SOFTDRINK WHERE PRICE BETWEEN 12 AND 18;

OR

SELECT DNAME, PRICE FROM SOFTDRINK WHERE PRICE>=12 AND Price <=18;

Or

SELECT DNAME, PRICE FROM SOFTDRINK WHERE PRICE >= 12 AND Price <= 18;

(iv) Increase the price of all drinks in the given table by 10%.

Ans: UPDATE SOFTDRINK SET PRICE = 1.10*PRICE;

OR

UPDATE SOFTDRINK SET PRICE = PRICE + 0.10*PRICE;

OR

UPDATE SOFTDRINK SET PRICE = PRICE + 10 / 100 *PRICE;

(v) SELECT COUNT (DISTINCT (PRICE)) FROM SOFTDRINK;

Ans: COUNT (DISTINCT PRICE)

4

(vi) SELECT MAX (CALORIES) FROM SOFTDRINK;

Ans: MAX (CALORIES)

150

(vii) SELECT DNAME FROM SOFTDRINK WHERE DNAME LIKE "%Mango %";

Ans: DNAME

Green Mango

Mango Juice Bahaar

(viii) What is the degree and cardinality of ` SOFTDRINK ` TABLE?

Ans: Degree = 4, Cardinality = 6

7. Consider the table Movie with the following data and answer the question that follows:

TABLE: Movie

Movie_Id	Movie_Title	Category	Total_Sales	Release_date	Stars_Received
M001	Harry Potter	Thriller	30000000	2007-07-20	5
M002	100 Days	Suspense	NULL	NULL	NULL
M003	Phir Hera Pheri	Comedy	27500000	2006-10-06	3.5
M004	Partner	Comedy	12000000	2007-09-07	4

(i) Display Movie_Id and "Directors Commission" as 2% of total sales.

Ans. Select Movie_Id, 0.02*Total_Sales AS "Directors Commission" from Movie;

(ii) Display Movie_Id, Movie_Title and Category of only those movies which are not yet released.

Ans. SELECT MOVIE_ID, MOVIE_TITLE, CATEGORY FROM MOVIE WHERE RELEASE_DATE IS NULL;

(iii) Display the details of Movies according to Stars_Received with Movies receiving maximum stars at the top.

Ans. SELECT * FROM MOVIE ORDER BY STARS_RECEIVED DESC;
(iv) Modify the stars received from 5 to 10 for the movies released in 2007.

Ans. UPDATE MOVIE SET STARS_RECEIVED=10 WHERE YEAR(RELEASE_DATE)=2007;

(v) Delete all the movies in the Suspense category.

Ans. DELETE FROM MOVIE WHERE CATEGORY=SUSPENSE;

(vi) Add a column Rating which can hold values 'UA' or 'U'.

Ans. ALTER TABLE MOVIE ADD RATING CHAR(2);

8. Consider the following COURSE table and answer the questions below:

TABLE:COURSE

NAME	AGE	DEPARTMENT	DATE OFADM	FEES	SEX
Pankaj	24	Computer	2009-01-10	720	M
Shalini	21	History	2008-03-24	800	F
Sanjay	22	Hiindi	2006-12-12	900	M
Sudha	25	History	2009-01-07	700	F
Rakesh	22	Hindi	2007-05-09	NULL	M
Shakeel	30	History	2008-07-27	900	M
Surya	34	Computer	2010-02-25	NULL	M
Shikha	23	Hindi	2011-07-31	900	F

Write SQL command for the following statements:

(i) To find total number of department in the table.

Ans. SELECT COUNT(DEPARTMENT) FROM COURSE;

(ii) To list the maximum fees for each department.

Ans. SELECT DEPARTMENT, MAX(FEES) FROM COURSE FROUP BY DEPARTMENT;

(iii) To enter the fees Rs 1000 for those records which has NULL entry in fees column .

Ans. UPDATE COURSE SET FEES=1000 WHERE FEES IS NULL;

(iv) To display the all departments, names and fees arranged in department wise, fees wise order.

Ans. SELECT NAME, DEPARTMENT, FEES FROM COURSE ORDER BY DEPARTMENT, FEES;

(v) Select Avg(fees) from COURSE where Sex="M";

Ans. 840

(vi) Select Sum(fees) from COURSE where Month(DATEOFADM)=7;

Ans. 1800

9. Consider the following table named "EXAM" with details of marks. Write commands of MySQL for (i) to (v) and output for (vi) to (viii).

Table: EXAM

Adno	SName	Percentage	ClSection	Stream
------	-------	------------	-----------	--------

ROO1	Sushant	90.2	12A	Science
ROO2	Mohan	81.5	12B	Commerce
ROO3	Srijan	65.5	12A	Science
ROO4	Miara	96.5	12B	Commerce
ROO5	Santosh	88.5	12C	Humanities
ROO6	Mridul	78.0	11A	Science
ROO7	Sunita	88.6	11B	Commerce

(i) To display all information of students of Commerce stream in ascending order of percentage.

Ans SELECT * FROM EXAM WHERE STREAM="COMMERCE" ORDER BY PERCENTAGE;

(ii) To display Adno, Name, Percentage and stream of those students whose name is less than 4 characters long.

Ans. SELECT ADNO, SNAME, PERCENTAGE, STREAM FROM EXAM WHERE LENGTH(SNAME)<4;

(iii) To add another column of Bus_Fees with datatype and size as Decimal(8,2).

Ans. ALTER TABLE EXAM ADD BUS_FEES DECIMAL(8,2);

(iv) To increase the percentage by 2% of all the Science students.

Ans. UPDATE EXAM SET PERCENTAGE= PERCENTAGE * 1.02 WHERE STREAM="SCIENCE";

OR

UPDATE EXAM SET PERCENTAGE= PERCENTAGE + (PERCENTAGE * 0.02) WHERE STREAM= "SCIENCE";

OR

UPDATE EXAM SET PERCENTAGE= PERCENTAGE * 1.02 WHERE STREAM IN("SCIENCE");

OR

UPDATE EXAM SET PERCENTAGE= PERCENTAGE + (PERCENTAGE *0.02) WHERE STREAM IN("SCIENCE");

(v) To display the records of students of class 12.

Ans. SELECT * FROM EXAM WHERE CLSECTION LIKE "12%";

(vi) To display the Names and Percentage of students of all classes who are studying in section "A".

Ans. SELECT SNAME,PERCENTAGE FROM EXAM WHERE RIGHT(CLSECTION)="A";

OR

SELECT SNAME,PERCENTAGE FROM EXAM WHERE CLSECTION LIKE "%A";

(vii) SELECT COUNT(DISTINCT STREAM) FROM EXAM;

Ans. 3

(viii) SELECT ROUND(PERCENTAGE) FROM EXAM WHERE CLASS LIKE = "12A";

Ans. 90

66

10.Pranay,whoisanIndian,createdatablenamed"Friends"tostorehisfriend's

detail.Table“Friends”isshownbelow.WritecommandsinSQLfor(i)to(iv)and output

**for
(v)to(vii).**

S_N	Name	Age	City	Country	Email_id
1	Alice	14	Washington	USA	alice@gmail.com
2	Charles	12	Copenhagen	Denmark	charles@yahoo.co
3	Angel	16	Chicago	USA	angel@gmail.com
4	Jasmine	15	Sydney	Australia	jasmine@yahoo.c
5	Raj	14	New Delhi	India	raj@gmail.com
6	Jette	13	Nykobing	Denmark	jette@gmail.com
7	Alexender	15	Melbourne	Australia	NULL
8	Shashank	16	Banglore	India	NULL

- (i) **To display list of all foreigner friends.**
- (ii) **To list name,city and country in descending order of age.**
- (iii) **To count how many friends have email id on gmail.**
- (iv) **To list name and city of those friends who don't have an email id.**
- (v) **Select name, country from friends where age > 12 and name like 'A%';**
- (vi) **Select ucase(concat(name,"*",city))
from friends where country like 'Denmark';**
- (vii) **Select mid(name,1,4) as "UID" from friends where country like 'USA';**

Ans.(i) Select name from friends where country not like "India";

(ii) Select name, city, country from friends order by age desc;

(iii) Select count(*) from friends where email_id like "%gmail%";

(iv) Select name, city from friends where email_id is null;

OUTPUT

(v)

Name	Age	Country
Alice	14	USA
Angel	16	USA
Alexender	15	Australia

(vi)

Ucase(concat(name,"*",city))
Charles*Copenhagen

Jette*Nykobing

(vii)

UID
Alic
Ange

11. Consider the table RESULT given below. Write commands in MySQL for (i) to (iv) and output for (v) to (vii)

Table: RESULT

No.	Name	Stipend	Subject	Average	Division
1	Sharon	400	English	38	THIRD
2	Amal	680	Mathematics	72	FIRST
3	Vedant	500	Accounts	67	FIRST
4	Shakeer	200	Informatics	55	SECOND
5	Anandha	400	History	85	FIRST
6	Upansaa	550	Geography	45	THIRD

(i) To list the names of those students, who have obtained Division as FIRST in the ascending order of Name.

Ans. SELECT NAME FROM RESULT WHERE DIVISION="FIRST" ORDER BY NAME;

(ii) To display a report listing Name, Subject and Annual stipend received assuming that the stipend column has monthly stipend.

Ans. SELECT NAME,SUBJECT, STIPEND*12 AS "ANNUAL STIPEND" FROM RESULT;

(iii) To count the number of students who have either Accounts or Informatics as Subject.

Ans. SELECT COUNT(*) FROM RESULT WHERE SUBJECT IN("ACCOUNT","INFORMATICS");

(iv) To insert a new row in the table RESULT:
7,"SUMITRA",675,"MATHEMATICS",75,"FIRST"

Ans. INSERT INTO RESULT
VALUES(7,"SUMITRA",675,"MATHEMATICS",75,"FIRST");

(v) SELECT AVG(Stipend) FROM RESULT WHERE DIVISION="THIRD";

Ans. 475

(vi) SELECT COUNT(DISTINCT Subject) FROM RESULT;

Ans. 6

(vii) SELECT MIN(Average) FROM RESULT WHERE Subject="English"

Ans. 38

12. Consider the following table GYM with details about fitness items being sold in the store. Write SQL commands for (i) to (iv).

ICODE	INAME	PRICE	BRANDNAME
G101	Power Fit Exerciser	20000	Power Gymea
G102	Aquafit Hand Grip	1800	Reliable
G103	Cycle Bike	14000	Ecobike
G104	Protoner Extreme Gym	30000	Coscore
G105	Massage Belt	5000	Massage Expert
G106	Cross Trainer	13000	GTC Fitness

(i) To display the names of all the items whose name starts with "A";

Ans. SELECT INAME FROM GYM WHERE INAME LIKE "A%";

(ii) To display ICODE and INAMEs of all items, whose Brandname is Reliable or Coscore.

Ans. SELECT ICODE, INAME FROM GYM WHERE BRANDNAME IN("RELIABLE", "COSCORE");

(iii) To change the Brandname to "Fit Trend India" of the item, whose ICODE is "G101".

Ans. UPDATE GYM SET BRANDNAME= "Fit Trend India" WHERE ICODE = "G101";

(iv) Add a new row item in GYM with the details : "G107", "Vibro Exerciser", 21000 , "GTC Fitness"

Ans. INSERT INTO GYM VALUES("G107", "Vibro Exerciser", 21000 , "GTC Fitness");

13. Consider the following table FITNESS with details about fitness products being sold in the store. Write command of SQL for (i) to (iv) and output for (v) to (vii).

Table: FITNESS

PCODE	PNAME	PRICE	MANUFACTURER
P1	Treadmill	21000	Coscore
P2	Bike	20000	Aone
P3	Cross Trainer	14000	Reliable
P4	Multi Gym	34000	Coscore
P5	Massage chair	5500	Regrosene
P6	Belly Vibrator Belt	6500	Ambaway

(i) To display the names of all the products with price more than 20000.

Ans. SELECT PNAME, PRICE FROM FITNESS WHERE PRICE > 20000;

(ii) To display the names of all products by the manufacturer "Aone".

Ans. SELECT PNAME FROM FITNESS WHERE MANUFACTURER="Aone";

(iii) To change the price data of all the products by applying 25% discount reduction.

Ans. UPDATE FITNESS SET PRICE=PRICE (PRICE*25/100);

(iv) To add a new row for product with the details: "P7", "Vibro Exerciser", 28000, "Aone".

Ans. INSERT INTO FITNESS VALUES("P7","Vibro Exerciser","28000","Aone");

(v) SELECT * FROM FITNESS WHERE MANUFACTURER LIKE "%e";

Ans.	PCODE	PNAME	PRICE	MANUFACTURER
	P1	Treadmill	21000	Coscore
	P2	Bike	20000	Aone
	P3	Cross Trainer	14000	Reliable
	P4	Multi Gym	34000	Coscore
	P5	Massage chair	65000	Regrosene

(vi) SELECT COUNT (DISTINCT (MANUFACTURER)) FROM FITNESS;

Ans. COUNT(DISTINCT(MANUFACTURER))
4

(vii) SELECT MAX (PRICE) FROM FITNESS;

Ans. MAX(PRICE)
65000

UNIT IV (IT APPLICATIONS)

1. Define e-Business. Name one popularly used e-Business website.

Ans. e-

Business refers to any form of transaction (exchange) that uses an electronic medium to

facilitate the transaction. Example www.amazon.com

2. What social impact does e-Governance have on society? Write any two relevant points.

Ans. 'e-Governance' programs have improved the efficiency of administration and Service delivery.

- People have also benefitted from e-governance in the form of reduced cost of availing these services.
- E- governance has proved successful in keeping a tab on corruption to some extent.

3. Write two important features of e-Business. Give some most commonly used e-Business sites.

Ans. Feature of e-Business:

- i. Offers opportunity to increase sales
- ii. Offer opportunity to access new market across the globe
- iii. Allows 24 x 7 access to the firm's products and services
- iv. Reduce inventory
- v. Improves speed of response

Few most commonly used e-Business sites are –

- i. www.licindia.com
- ii. www.statebankofindia.com
- iii. www.amazon.com
- iv. www.ebay.com
- v. www.westernunion.com

4. Give one social impact of e-Business.

Ans: Brings rapid change in the social fabric characterized by globalization of markets business and government policies

5. Write two advantages of e-Learning sites.

Ans. Advantages of e-learning sites are

- Self paced learning
- Unlimited revisions
- Facilitates electronic delivery of customized learning objects
- Facilitates teacher-student interaction
- Facilitates peer-peer interaction

6. How does e-learning allow students to study at their own pace ?

Ans. E-Learning at own pace allow a student to:

- Learning any time
- Learning any topic
- Evaluation at own pace

7. How does e-governance empower citizens? Write any two points.

Ans. E-Governance empowers citizen by providing:

- Access to all government instructions and rules
- Facility to contact government officials
- Lodge request/complaint
- Online registrations for various government services

8. What is e-Learning?

Ans. e-

Learning is the delivery of a learning, training or education program by electronic means.

E-learning can be CD-ROM-based, Network-based, Intranet-based or Internet-based to provide training, educational or learning material. e-

Learning allows you to learn anywhere

and usually at any time. It can include text, video, audio, animation and virtual environments.

9. Explain any two major projects of E-Governance in India.

Ans. The 2 major projects of E-Governance in India are:

- (i) **DRDO:** It is a network of more than 50 laboratories which are engaged in developing defence technologies covering various disciplines like naval system, special materials, advanced computing etc.
- (ii) **Indian Courts:** It includes the website of Supreme Court and all high courts and their benches in India. It provides us a single point access to information related to the Supreme Court and High Courts in India.

10.

What is m-Commerce?

Ans. m-Commerce (mobile commerce) is the buying and selling of goods and services through wireless technology using mobile phones or PDAs.

11.

Explain any two features of front-end.

Ans. The features of front-end are:

1. Display: It includes the type of widgets used, user friendly dialog-boxes,

W

E

correct usage of controls etc.

2. Functionality Feature: It includes the validation, security features, storage, speedresponsive features etc.

12. How is e-learning beneficial to students? Write one point

Ans. E- learning beneficial to students in the following ways:

- Students can learn at their own pace.
- A lesson can be revised any number of times at students' convenience.
- Students can learn lessons at their homes at their convenient time.

13. List two features of a good interface.

Ans. (i) It should have pleasant color combination so that the user likes to use it.

(ii) It should have all the relevant options for all the required fields so that the user is at ease while entering the data.

14. Write

one advantage of using IT applications over the manual operations?

Ans. Using IT applications we can save time.

15. Give one example each of input values, where Radio Button and Check Box should be used for efficiency in an IT application.

Ans. (i) Radio Button – To input gender: Male or Female

(ii) Check Box – To input hobbies from a number of options available.

16. How is e-Commerce beneficial to businessmen? Write one point.

Ans. e-Commerce can help the businessmen in acquisition of new customers and increased sales.

17. What is impact of e-Learning sites on students' learning process?

Ans. The impacts of e-Learning sites on students' learning process are:

- (i) Students get current updation on these sites, which is not possible through books.
- (ii) E-Learning sites make students' learning more fast with the help of audio visual tools.
- (iii) Students are more engaged and able to develop latest skills.

18. How is e-Business beneficial to shopkeepers?

Ans. (i) It helps in promoting the shopkeeper's product/services globally.

(ii) It allows 24 x 7 accesses to the shop's product and services.

19. What do you understand by e-Governance?

Ans. e-Governance refers to electronic governance. The word electronic implies technology driven governance. e-Governance is the application of Information and Communication Technology (ICT) for delivering government services, exchange of information communication transactions etc.

20. Expand the terms (i) G2C (ii) G2B

Ans. (i) Government to citizens (ii) Government to Business

21. What do you understand by e-Business?

Ans. e-Business or Electronic Business may be defined as the application of Information and Communication Technology (ICT) in support of all the activities of business. Or we can say e-Business refers to any form of transaction (exchange) that uses an electronic medium to facilitate the transaction.

22. What is front end application?

Ans. A "front-end" application is one; that application users interact with directly. For example, Internet Browser or any other software application where end user works.

23. What is back end application?

Ans. A "back end" application or program serves indirectly in support of the front-end services usually by being closer to the required resource or having the capability to communicate with the required resource. For example database like MySQL, Oracle, MS-Access etc.

24. Name any two websites for e-Learning.

Ans. www.w3schools.com , www.moodle.org , www.meritnation.com

25. Name some departments covered to implement e-Governance in India.

Ans. Stamp registration, Municipal corporations, Octroi collection, Decision support System (DSS), Hospital management system etc.

26. What is asynchronous training?

Ans. This is e-Learning in the more traditional sense of the word. It involves **self-paced** learning, either CD-ROM based, Network based, Intranet-based.

27. What is synchronous training?

Ans Synchronous training is done in **real time** with a live instructor facilitating the training. Everyone logs in at a set time and can communicate directly with the

instructor and with each other. This type of training usually takes place via internet websites, video conferencing etc.

28. What is ICT?

Ans. Information and Communication technology or ICT, is defined as the combination of Information technology with other related technologies specifically communication technology.

29. What are the different methods to perform e-Learning?

Ans. The methods are: CD-ROM based, Network based, Intranet based or Internet based learning.

30. Name some components of ICT.

Ans. Depending on input, process, output and communication, the ICT is broadly divided into six components. These are : people, data, hardware, software, procedures and information.

Long Answer Questions

1. How does e-governance help in reducing corruption? Write two points.

Ans. (i) From e-Governance web portals, general public can get information regarding the registered companies. Due to this facility public can identify fraud companies and fee/charges to be paid for various services.

(ii)

Passport details of passport holders are available on **passport.gov.in** web site by which fake passport can be identified easily and passport department can control the crime.

2.

Suruchi works for a Shopping Mart. She wants to create controls on a form for the following operations:

Choose most appropriate controls out of Text Field, Label, Radio Button, List box, Combo box, Check box and Command button.

SNo	Function
1	Enter the Item code
2	Select Item Size (from a list of sizes)
3	Enter Quantity
4	Submit the Form

Ans.

SNo	Function	Control
1	Enter the Item code	Text Field
2	Select Item Size (from a list of sizes)	Combo Box
3	Enter Quantity	Text Field

4	Submit the Form	Command button.
---	-----------------	-----------------

3. How has popularity of e-Business benefited a common man? Write domain name of one popular e-Business site as an example.

Ans. **Benefits are :**

- Improved speed of response
- Cost savings
- Improved communications, information and knowledge sharing
- Reductions in inventory
- Improved efficiency and productivity
- Better transfer of best practices
- Improved customer service

Domain name: www.yatra.com , www.ebay.com

4. Shobhit is creating a form for his company. Help her to choose most appropriate controls from ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries:

- 1 To enter NATIONALITY from all the nationalities given as options**
- 2 To enter AGE between a range 20 to 25**
- 3 To allow to select one or more FAVORITE SPORTS out of the given 6 options**
- 4 To enter SUGGESTION in the form of a paragraph**

Ans. **SNo Function**
Control

- | | | |
|---|---|----------|
| 1 | To enter NATIONALITY from all the nationalities given as options | ComboBox |
| 2 | To enter AGE between a range 20 to 25 | ComboBox |
| 3 | To allow to select one or more FAVORITE SPORTS out of the given 6 options | CheckBox |
| 4 | To enter SUGGESTION in the form of a paragraph | TextArea |

5.

Mr. Anurag Das working as Manager in Vivian Enterprises wants to create a form in

NetBeans

to take various inputs from user. Choose appropriate controls from Label, TextBox, Radio Button, CheckBox, ListBox, ComboBox & Command Button and write them in the third column:

SNO	Control used to	Con
1.	Enter Name, Address and Salary	
2.	Select Gender (Male / Female)	
3.	Select Department from available List	
4.	Choose Hobby of Employee (Singing/Dancing/Skating/Swimming)	
Ans.	1. TextBox 2. Radio Button 3. ComboBox 4. CheckBox	

6. Write three important features of e-Governance? Give URL of one of the commonly used e-governance portal.

Ans:

- Provides citizens access to information about the processes and services.
- Facilitates a speedy, transparent, accountable and efficient process for performing government administrative activities.
- Uses modern information and telecommunication technologies such as internet, Local area networks to enhance efficiency
- A lot of productive time of government servants and general public is saved.

Examples of e-governance portals are:

- www.incometaxindia.gov.in
- www.supremecourtindia.nic.in
- www.passport.gov.in
- www.irctc.co.in

7. Anuja is creating a form for her practical file. Help her to choose most appropriate controls from List Box, Combo Box, TextField, TextArea, RadioButton, Checkbox, Label and Command

button for the following entries from user.

- (i) A message "Enter Marks" in front of a TextField.
- (ii) An input to choose more than one subjects from a set of choices.
- (iii) An input for entering remarks.
- (iv) An input for accepting Gender.

Ans:

- (i) Label
- (ii) ListBox/Check Box
- (iii) TextArea [Most Appropriate answer]
TextField [Also acceptable]
- (iv) RadioButton/ComboBox [Most Appropriate answer]
TextField [Also acceptable]

8. Sabeena is creating a form for the hotel where she works. Help her to choose most appropriate controls from ListBox, Combobox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries:

S.No.	Function
1	To input name
2	To allow enter gender out of M or F
3	To allow selecting type of room out of Deluxe, SemiDeluxe, General
4	To allow entering preferences of guest in the form of a paragraph

Ans.

S.No.	Control/s
1	TextField
2	ComboBox/ RadioButton
3	ComboBox/ RadioButton
4	TextArea

9. Mr. Chandarana is creating a form for his retail store for adding new items, edit existing items, delete items. Help him to choose most appropriate controls from List Box, Combo Box, TextField, TextArea, RadioButton, Checkbox, Label, Button and Text Area for the following entries from user.

- (i) A message "Enter Item Name" in front of a TextField.
- (ii) A message "Select Existing Items from list" in front of a TextField
- (iii) An input to select an existing product from list (there 1200 items)

- (iv) **An input to choose more than one suppliers (there are 4 suppliers)**
 (v) **An input for entering cost and quantity of item.**
 (vi) **An input for Damaged item or Not.**

Ans.

- (i) Label
- (ii) Label
- (iii) Combo Box
- (iv) Checkbox / List Box
- (v) TextField
- (vi) RadioButton

10. Prikshit works for a school. She wishes to create controls on a form for the following functions. Choose appropriate controls from Text box, Label, radio button, Check box, List box, Combo box, Command button and write in the third column.

S.NO	Control used to	Control
1	Enter Admission Number	
2	Select Stream	
3	Select Subjects	
4	Clear the Form	

Ans.

S.NO	Control used to	Control
1	Enter Admission Number	TextField
2	Select Stream	ListBox/Combo Box/Radio Button
3	Select Subjects	Check Box
4	Clear the Form	Button

11. Vijayan works for the Customs Department. He wishes to create controls on a form for the following functions. Choose appropriate controls from Text box, Label, Option button, Check box, List box, Combo box, Command button and write in the third column.

SNo	Control Used to	Control
1	Enter Last Name	
2	Enter gender	
3	Choose City from a list of cities	
4	Submit Form	

Ans.

SNo	Control Used to	Control
1	Enter Last Name	Text Field
2	Enter gender	Option Button
3	Choose City from a list of cities	List Box or Combo Box

4

Submit Form

Button (Command)

12. How e-Learning is beneficial to a trainer?

Ans. (i) Reduced overall cost (ii) Consistent Delivery
 (iii) Learning time reduced (iv) Fast updating and cost effectiveness
 (v) Easily manageable (vi) The trainer can train hundreds of students easily

13. Use of e-Governance has its social and economic impacts. Justify.

Ans. **Social Impacts**

- (i) e-Governance programmes have improved the efficiency of administration and service delivery.
- (ii) e-Governance programmes resulted in reduced waiting time before the work done
- (iii) e-Governance has proved successful in keeping a tab on corruption.
- (i) e-Governance programmes have resulted in increased public participation
- (ii) e-Governance programmes have resulted in increased transparency of government offices.

Economic impacts

- (i) Cost reduction (ii) Budget savings (iii) Growth of tax revenues etc. are some major economic impacts of e-Governance on the society.

14. Shraddha works for a hospital. She wishes to create controls on a form for the following functions. Suggest controls to her. Choose appropriate controls from Text box, Label, Radio button, Check Box, List Box, Combo Box, Command Button

SNO	Control Used to	Control
1	Enter Patient name	
2	Choose Gender (out of Male/Female)	
3	Choose Department from a list of available departments	
4	Submit Form	

Ans.

SNO	Control Used to	Control
1	Enter Patient name	jTextField
2	Choose Gender (out of Male/Female)	jComboBox or jRadioButton
3	Choose Department from a list of available departments	jComboBox
4	Submit Form	jButton

15. Differentiate between e-Governance and e-Government.

Ans. The difference between e-Governance and e-Government can be described as Government's foremost job is to focus society on achieving the public interest. Governance is a **way** of describing the links between government and its broader political, social and administrative environment.