

**Kendriya Vidyalaya Sangathan**  
**IMPORTANT QUESTIONS WITH SOLUTIONS**  
**Class XII (IP) -2016**

<b>UNIT-1 : Questions &amp; Answers</b>
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**Q1. What is MAC Address?**

**Ans** In computer networking, a Media Access Control address (MAC) 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.

**Q2. Write two advantages of networks.**

**Ans:** Advantages of networks:

1. Data or information can be shared among the users.
2. Fast communication can be achieved.

**Q3. Write two disadvantages of networks.**

**Ans:** Disadvantages of networks:

1. Sophisticated Hardware and software technology is required.
2. Expensive to install network.

**Q4. What is communication channel? Name the basic types of communication channels available.**

**Ans:** What is communication channel? Name the basic types of communication channels available. Communication channels mean the connecting cables that link various workstations. There are 3 basic types of cables:

1. Twisted Pair cables
2. Coaxial cables
3. Fiber-optic cables

**Q5. Define a network.**

**Ans:** A computer network is a system in which computers (devices) are connected to share information and resources.

**Q6. What is IP address?**

**Ans:** A unique number consisting of 4 parts separated by dots, e.g. 165.113.245.2 Every machine that is on the network has a unique IP number - if a machine does not have an IP number, it is not really on the Internet.

**Q7. What is domain name? How is it different from URL?**

**Ans :** The domain name identifies a class of web sites. It can be generic (.com, .net, .org etc.) or country domain (.in, .au, .ca etc.) . URL is a unique string including web site name and specific html page to be accessed e.g. *www.abc.com/welcom.html*

**Q8. What are the various types of networks?**

**Ans:** Network can be classified on the basis of their size, complexity and geographical spread. On the basis of geographical spread it can be classified as Local Area Network, Metropolitan Area Network and Wide Area Network.

**Q9. What is the difference between MAN and WAN?**

**Ans:** A **metropolitan area network (MAN)** is a large computer network that usually spans a city or a large campus. **WAN** is a *network* that covers an area larger than a single building or campus such as across the cities or countries.

**Q10. What is meant by Topology? Name some popular topologies.**

**Ans:** Network topology is defined as the layout of interconnecting the various network devices (links, nodes etc.) of a computer network. Various network topologies are:

Bus topology, Star topology, Ring topology, Tree topology & Mesh topology

**Q11. What are the similarities and differences between bus and tree topologies?**

**Ans:** In bus topology each machine is connected to a single cable. Each computer or server is connected to the single bus cable through some kind of connector.

Tree topology is a network with the shape of an inverted tree in which a single link between two nodes.

**Q12. What are the limitations of star topology?**

- Ans:**
- i) Central node dependency: In this topology central node is a controller of the network. If the central node fails, the entire network will be failed.
  - ii) Difficult to expand: The addition of a new node to a network involves a connection all the way to the central node.

**Q 13: Discuss about various security threats?**

**Ans:** The various threats to network security are as follows:

**1. Intrusion Problems / Access Attacks:**

This occurs when an unauthorized user attempts to protected sensitive / confidential information. It may be of following types:

- **Snooping:** It refers to unauthorized access to someone else's data, email or computer activity.
- **Eavesdropping:** It refers to unauthorized listening / intercepting someone else's private communication / data/ information.
- **Phishing :** this is an attempt to acquire private and confidential information from user. In this type of attack user himself discloses his privacy.

**2. Denial-of-services attacks:**

DoS are those attacks that prevent the legal users of System from accessing or using the resources, information or capabilities of the system. It may be of following types:

- Denial of Access to Information: Such attack causes deletion or changing of important information to non readable format.
- Denial of Access to Applications: Such attacks make the applications unusable or unavailable for legal user of the system.
- Denial of Access to Communications: Such attacks includes cutting of communication wire, jamming radio communications, flooding a system with junk mail.

**Q14: What do you mean by malicious programs?**

**Ans:** Malicious Program are such programs which are designed for mal-functioning. These are-

**Virus:** Computer viruses are malicious and self-replicating codes/programs that cause damage to data and files on the computer system.

**Worm:**It is also a self-replicating program which eats entire disk space or memory. It copies itself until all the disk space or memory is filled.

**Trojan horse:** It is a program that appears harmless (like utility program) but actually performs malicious functions such as deleting damaging files.

**Spyware:** Spyware is a program designed to spy on your activities and report this data to people willing to pay it either legal or illegal purposes. It is getting installed in your system without your consent as a file or gets downloaded from Websites on Internet.

**Q15: Who are Hackers? How they are different from Crackers?**

**Ans:** A hacker is someone who seeks and exploits weaknesses in a computer system or computer network. Hackers may be motivated by various reasons such as profit, protest, or challenge. They are expert computer programmers who can break security to gain the computing resources and may exploit privacy.

Hacker, who breaks security for non-malicious reasons, perhaps to test any security system to

make the security more effective, is called 'White Hat hacker'. The term "white hat" refers to an Ethical Hacker

Some Hackers can crack password or secure networks to destroy or theft data or make the network unusable for making money, are called Black Hat Hackers. Black Hat Hackers are also called "crackers".

**Q 16: What is Internet? Discuss some communication facilities available on Internet?**

**Ans:** Internet is a network of networks that consists of millions of private, public, academic, business, and government networks, that are linked by various wired, wireless, and optical networking technologies. It is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to serve several billion users worldwide. The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW), the communicational infrastructure to support e-mail, chat and transfer of Text, Images, Audio, Video etc. Some communication facilities are- World wide web, e-Mail, SMS & MMS, Instant Message (Chat), Video Conferencing, Voice mail etc.

**Q17. What is OSS?**

**Ans:** Open Source Software is software which are available with source code and are free to change/edit / redistribute and imposed no further restrictions on product or its usage.

**Q18. Expand the terms: OSI, FLOSS, FSF, GNU, W3C, and PHP.**

**Ans :** **OSI** :Open source Initiative

**FLOSS** :Free Libre and Open Source Software.

**FSF** :Free software Foundation created for the purpose of supporting free Movement.

**GNU** :GNU's Not Unix Project established with an objective to create an OS like UNIX.

**W3C** :World Wide WEB consortium is responsible for producing the software standards for World Wide Web.

**PHP** :Hypertext Pre-processor is a widely used open source web programming language.

**Q19. What is free software?**

**Ans:** Free Software means the software is freely accessible and can be freely used, changed improved, copies and distributed to others.

**Q20. Define freeware and shareware.**

**Ans:** The freeware is the software available free of cost and allows copying and further distribution but does not allow modification as its source code is not available.

Shareware is as software which is available for redistribution for stipulated time but after some time some license fee is required to be paid.

**Q21. What is openoffice.org?**

**Ans:** It is Office an application suite which is free and open source software. It works like Microsoft Office. It is compatible with various Operating Systems like Windows, UNIX, MAC OS etc.

**Q22. What are different font categories?**

**Ans:** 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).

**Q23. What is ODF?**

**Ans:** ODF is an Open Document file Format used for exchanging office documents such as memos, reports, spreadsheets, database, charts and presentations. Open document is open, XML based file format used for exchanging office documents such as memos, reports, spreadsheets, database, charts and presentations.

**Q24. What is key map based text entry?**

**Ans:** When you type text from a keyboard having key mapping of Indian Languages characters is known as key map based text entry. In key map based implementation of Indian languages, the layout of English keyboard is changed as per other language.

**Q25. What is Unicode?**

**Ans:** Unicode is 2-byte coding system used globally to incorporate various languages in the word. It is platform independent and fully compatible to most of OS.

<b>UNIT- 2 : Questions &amp; Answers</b>
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**Very Short answers types questions**

**1. Write command to display a message dialog to display prompt as “Hello World” , title as “My dialog” and icon as question icon.**

**Ans:** `JOptionPane.showMessageDialog(null, "HelloWorld", "My dialog", );`

**2. Name the different list type controls offered by Java Swing.**

**Ans:** (i) `JList` (ii) `JComboBox`

**3. Name any two commonly used method of `List`.**

**Ans:** `getSelectedIndex()` and `getSelectedValue()`

**4. Write code to add an element (“New Course”) to a list (`SubList`) at the beginning of the list.**

**Ans:** `SubList.add(0, "New Course");`

**5. What is difference between ‘a’ and “a” ?**

**Ans:** ‘a’ is character and “a” is string.

**6. How would you make a combo box editable?**

**Ans:** By setting its `editable` property to true.

**7. Write the expression to print the value of a variable "x" of type int in a label.**

**Ans:** `JLabel1.setText(""+x);`

**8. In JDBC coding, what methods would be opted to move to last record of the recordSet?**

**Ans:** `recSet.last();`

**9. What is the name of event listener interface for action events ?**

**Ans** `ActionPerformed`

**10. Name the inheritance type which is not supported by JAVA.**

**Ans** Multiple inheritance

**11. What will be the value of `textField1` after execution of following code :**

`textField1.setText("Informatics".substring(2,6)`

`);` **Ans:** form

**12. Name the character set supported by Java.**

**Ans:** Unicode.

**16. What will be the value of y if x has 42 (1) `y = ++x` (2) `y = x++`**

**Ans:** (1) 43 (2) 42

**17. Name the 4 essential class libraries that we need to import for setting up the connection with the database and retrieve data from the database.**

**Ans:** `DriverManager`, `Connection`, `Statement`, `ResultSet`

**18. What is Event?**

**Ans.** An Event refers to the occurrence of an activity.

**19. What is Message?**

**Ans.** A Message is the information/request sent to the application.

**20. Which Swing control is invisible on the Frame?**

**And:** `ButtonGroup`

**21. Which property of list box is used to display values in the list?**

**And:** `Model` Property

**22. How one can make a text field un-editable on a frame?**

Ans: `textfield1.setEditable(false)`

**23. Which will be displayed in JTextArea after executing the following?**

`JTextArea1.setText("India \n is a great \t country");`

Ans: India

Is a great      country

**24. How one can make a text field un-editable on a frame?**

Ans: `textfield1.setEditable(false)`

**25. Predefined classes are available in the form of .....**

Ans: package

### Short answers type questions

**Q1. How GUI application works?**

Ans. Graphical User Interface (GUI) based application contains Windows, Buttons, Text boxes, dialogue boxes and Menus etc. known as GUI components. While using a GUI application, when user performs an action, an Event is generated. Each time an Event occurs, it causes a Message which sent to OS to take action.

**Q2. What is a Method (Function)?**

Ans. A Method or function is sequence of statement which is written to perform a specific job in the application. In Object Oriented Programming, Method represents the behavior of the object. A message can also be thought as a call to an object's method.

**Q3. What is Event? How the computer responds to an event?**

Ans. An event is occurrence of some activities either initiated by user or by the system. Hence Any user action related to the GUI is called an event, Almost all actions the user performs will "trigger" an event for us to handle. For example:

- Moving the mouse
- Clicking on a button
- Writing text in a text box etc.

In order to react, you need to implement some Event handling system in your Application.

Three things are important in Even Handling-

**Event Source:**

It is the GUI component that generates the event, e.g. Button.

**Event Handler or Event Listener:**

It is implemented as in the form of code. It receives and handles events through Listener Interface.

**Event Object or Message:**

It is created when event occurs. It contains all the information about the event which includes Source of event and type of event

**Q4. How to use Event Handlers in NetBeans?**

Ans. As you attached an Event along with Listener, you will find a code window along with prototyped method to perform actions defined by you. You may write commands to be executed in //TODO section.

You may define Action Event, Item Event, Mouse Event, Key Event and Mouse Motion Event to a button. Generally, ActionPerformed() Event is handled like-

`jButton1.ActionPerformed( java.awt.event.ActionEvent evt)`

You can also rename the Event handler method.

**Q5. Explain Text Fields, List, Combo Box , check box and radio control in Java?**

Ans:

**1. TextField**

Text Field allow the user to enter data as single line text or display text data to the user.

**Various things we can do with Text Field (Methods)**

- A text field can be "enabled" or "disabled"
  - **Enabling a text field : (Enabled means - Data can be entered )**  
How to do that- `textField1.setEditable(true);`
  - **Disabling a text field : (Disabled: Data can only be displayed)**  
How to do that- `textField1.setEditable(false);`
- Data can be written into or Read from Text Fields
  - **Setting the text in a text field ( Show what you want to display)**  
How to do that- `textField1.setText("Welcome User!");`
  - **Getting the text from a text field (Get values into some variable)**  
How to do that- `String s = textField.getText();`

## 2. List box / Combo box

A list (or combo) box enables the user to choose an option between many alternatives

- **List box:** User can only choose between specified alternatives
- **Combo box:** User can either choose between specified alternatives, or specify choice manually (by typing it in)

### Various things we can do with List/Combo Box (Methods)

- A List/Combo box can be "enabled" or "disabled" like a Text Field
  - **Enabling a List/Combo box**  
How to do that - `theBox.setEditable(true);`
  - **Disabling a List/Combo box**  
How to do that - `theBox.setEditable(false);`
- Items can be selected programatically or Selected items can be read from them
  - **Setting the selection in a List/Combo box**  
How to do that - `theBox.setSelectedItem("Three");`
  - **Getting the selection from a List/Combo box**  
How to do that - `String s = (String)theBox.getSelectedItem();`

## 3. Check boxes/ Radio Buttons

Unlike list/Check Boxes, in some cases, the set of possible choices is limited to two options, Often a case of either/or, or perhaps on/off – such case best suits check boxes or radio buttons  
A Check box can only be in two states; checked or unchecked, it is very Nice fit for binary choices

### Various things we can do with List/Combo Box (Methods)

- A Check Box/Radio Button can be "enabled" or "disabled" like a Text Field
  - **Enabling a Check box/Radio Button**  
How to do that - `theRCBox.setEnabled(true);`
  - **Disabling a Check box/Radio Button**  
How to do that - `theRCBox.setEnabled(false);`
- Items can be selected programatically or Selected items can be read from them
  - **Setting the selection in a Check box/Radio Button**  
How to do that - `theRCBox.setSelected(isSelected);`
  - **Getting the selection from a Check box/Radio Button**  
How to do that - `boolean isSelected = theCBox.isSelected();`

## Q6. What is a variable? Explain with example.

Ans. A variable is named memory location, which holds a data value of a particular data type.

Declaration and Initialization of variable-

<data type><variable Name>; Example:

```
int age;
double amount;
double price=214.70, discount =0.12;
String name="Amitabh"
long x=25L;
byte a=3; float
x= a+b;
```

By default all Numeric variables initialized with 0, and character and reference variable with

null, boolean with false, if it is not initialized.

The keyword final can be used with variable declaration to indicate constant.

E.g. final double SERVICE\_TAX=0.020

**Q7. What do you mean by parsing ?**

Ans: The Parsing refers to converts textual data from GUI component in to numeric type.

Byte.parseByte(String s) – string into byte.  
Short.parseShort(String s) – string into short.  
Integer.parseInt(string s) – string into integer.  
Long.parseLong(string s) – string into long.  
Float.parseFloat(string s) – string into float.  
Double.parseDouble(string s) – string into double.  
e.g. int age=Integer.parseInt(jTextField1.getText());

**Q8. How to Display Dialogue Boxes in JAVA GUIs (Netbeans)?**

Ans: In GUI application often we require to display a message in the Dialog Boxes containing OK button to close the Dialog Box. The following steps can be used to display a message in a dialog box.

Firstly, you need to import JOptionPane swing control at the top of program code, by typing –  
**import javax.swing.JOptionPane;**

When required you may display a message by following code in a method-  
**JOptionPane.showMessageDialog(null, "Hello.. ");**

**Q9. Explain the concept of Focus.**

Ans: Focus is the ability to receive user input/ response through Mouse or Keyboard. When object or control has focus, it can receive input from user. An object or control can receive focus only if its enabled and visible property is set to true.

Most of the controls provides FOCUS\_GAINED() and FOCUS\_LOST() method in FocusEvent by the FocusListener. FOCUS\_LOST() is generally used for validation of data.

You can give focus to an object at run time by invoking the requestFocus() method in the code.

Example : jTextField1.requestFocus(); - This method puts focus on jTextField1.

**Q10. What is an expression? What are the various types of expressions in Java?**

Ans: An expression is a valid combination of operators, constants and variable and keywords i.e. combination of Java tokens. In java, three types of expressions are used.

**Arithmetic Expression:** Arithmetic expression may contain one or more numeric variables, literals and operators. Two operands or operators should not occur in continuation. e.g. x+y and q(a+b-z/4) is invalid expressions.

**Compound Expression:** It is combination of two or more simple expressions. e.g. (a+b)/(c+d) and (a>b)||(b<c)

**Logical Expression :** Logical or Boolean expression may have two or more simple expressions joined with relational or logical operators.

e.g. x>y (y+z)>=(x/z) x||y && z (x) (x-y)

**Q11. What is 'Scope' of a variable? Explain.**

Ans: In Java, a variable can be declared anywhere in the program but before using them. The area of program within which a variable is accessible, is known as its scope. A variable can be accessed within the block where it is declared.

**Q12. What are Access Specifiers ? How Access is controlled for members of Super class?**

Ans. Access specifier tells a compiler about the usability of a data member of a class in a java program. Java supports basically three types of access specifier, however there are some others too, these are: **Public, Private, Protected, and further - default and private protected.**

- **Public:** A Class member with public access specifier is usable outside the class. i.e. it can be used in any class in the program.
- **Protected:** A class member with protected access specifier can be inherited by a child class but is not usable outside the parent class.

- **Private:** Private members of a class can just be utilized inside the class and are hidden outside the class a private member cannot be used in any other class other than the class in which it is declared.
- **Default:** These members are accessible only in the class that are in the same package class i.e., in their own classes.
- **Private Protected:** These members are accessible only from subclasses whether in the same package or in the other package.

**Q13. What is casting? When do we need it?**

Ans: Casting is a conversion, which uses the cast operator to specify the type name in parenthesis and is placed in front of the value to be converted.

For example: Result = (float) total / count ;

They are helpful in situations where we temporarily need to treat a value as another type.

**Q14. What is the purpose of break statement in a loop?**

Ans: In a loop, the break statement terminates the loop when it gets executed.

**Q15. How is the if...else if combination more general than a switch statement?**

Ans: The switch statement must be by a single integer control variable, and each case section must correspond to a single constant value for the variable. The if...else if combination allows any kind of condition after each if.

**Q16. What is a container component?**

Ans: A container is a special type of component that can hold other components. Some Swing Containers are JPanel, JFrame, JApplet, JWindow, JDialog and JInternalFrame. The components contained in a container are called child component.

**Q17. How are protected members different from public and private members of a class?**

Ans: Protected members can be directly accessed by all the classes in the same package, as that of the class in which the member is and sub classes of other package. Whereas private members cannot be accessed outside the class, even in subclasses of the class and public members can be directly accessed by all other classes.

**Q18. What is an abstract class and abstract method?**

Ans: An Abstract Class is the one that simply represents a concept and whose objects can't be created. It is created through the use of keyword abstract. Abstract methods are methods with no method statements. Subclasses must provide the method statements for the inherited abstract methods e.g. in the following code class.

**Q19. Differentiate between JDBC and ODBC?**

Ans: JDBC (Java Database Connectivity) is developed by Sun Java for the purpose of connecting java applications with a variety of relation database systems like MySQL or Oracle. On the other hand, ODBC (open database connectivity) is a system developed by Microsoft to connect Microsoft based programming application (like visual basic) with a variety of relation databases.

**Q20. What are the main tasks of JDBC?**

Ans: Mainly JDBC perform the following:

- a) Establishes a connection with a relation database
- b) Sends SQL queries/ statements to the database
- c) Process the results obtained from the database server.

## Programming Problems

**1. Write a java program to calculate the sum of all the no. divisible by 5 in the range 1 to 50.**

```
Ans: int sum=0;
for(int i=1;i<=50;++i)
    { if(i%5==0)
      sum=sum+i;
```



```
    }  
    jLabel1.setText(""+sum);
```

**2. What do you mean by infinite loop. Write one program that has infinite loop**

Ans: A loop that never terminates is called infinite loop.

Example : for(;;)  
{ jLabel1.setText("Hello");}

**3. Write method in java that takes a number returns the sum of its digits.**

Ans int sumdig(int n)  
{ int sum=0, r;  
 while(n!=0)  
 {int r=n%10;  
 n=n/10;  
 sum=sum+r;  
 }  
 return (sum);  
}

**4. How many times, the following loop gets executed?**

```
    i=0;  
    while(i>20)  
    { //Statements  
    }
```

Ans: 0 times

**5. How many times, the following loop gets executed?**

```
    int i=0;  
    do  
    { //Statements  
    }while(i>20);
```

Ans: 1time

**Output Finding Questions**

**1. Write the output :**

- (i) jTextField1.setText("Hello".charAt(3));
- (ii) jTextField1.setText("Good morning".substring(4));

Ans:

- (i) l
- (ii) morning

**2. Write the value stored on y variable after executing the following code :**

```
int x , y = 0;  
for(x=1;x<=5;++x)  
y=x++;
```

Ans: 5

**3. Find the output of the code:**

```
intf=1,i=2;  
do  
{f*=i;  
}while(++i<5);  
jTextField1.setText (""+f);
```

Ans: 24

**4. What will be the value of j and k after execution of the following code:**

```
intj=10,k=12;
```

```
if(k>=j)
{k=j;
J=k;}
```

Ans: 10 10

**5. What will be the contents of jTextField after executing the following statement:**

```
int num=4;
num=num+1;
if(num>5)
jTextField1.setText(Integer.toString(num));
else
jTextField1.setText(Integer.toString(num*4));
```

Ans: 20

**6. Find the output of the following code:**

```
intFirst=7;
intSecond=73;
First++;
if(First+Second>90)
    jLabel1.setText("valueis90");
else
    jLabel1.setText("valueisnot90");
```

Ans: value is not 90

**7. Find the output**

```
int Number1=7,Number2=8;
int Second=73;
if(Number1>0||Number2>5)
    if(Number1>7)
        jTextField1.setText("CodeWorked");
    else
        jTextField1.setText("CodeMightWork");
else
    jTextField1.setText("CodewillnotWork");
```

Ans: CodeMightWork

**8. What will be the content of the JTextArea1 after executing the following code?**

```
intNum =1;
do
{ jTextField1.setText(Integer.toString(++Num)+"\n");
Num= Num + 1;
}while(Num<=10);
```

Ans: 10

**9. What will be the contents of jTextField1 and jTextField2 after executing the following code:**

```
Strings="KENDRIYAVIDYALAYA SANGATHAN"
jTextField1.setText(s.length()+"");
jTextField2.setText(Math.round(2.34)+"");
```

Ans: 282

**10. Give the value of x after executing following Java code.**

```
int a=10,b=12,x=5,y=6;
while(a<=b)
{ if(a%2==0)
    x=x+y;
else
    x=x-y;
a=a+1;
}
```

Ans: 11

**11. What will be the output produced by following code fragment?**

```
float x=9, y=5;
int z=(int)(x/y);
switch(z)
{
case1: x=x+2;
case2: x=x+3;
default: x=x+1;
}
System.out.println("valueof x:"+x);
```

Ans: value of x: 15

**12. What values will be assigned to the variable ua ,ub, uc and fail after execution of the following program segment:**

```
inti=0,ua=0,ub=0,uc=0,fail=0;
while(i<=5){
switch(i++){
{ case1:++ua;
case2:++ub;
uc++;
break;
case3:
case 4:++uc;
ua++;
ub++;
break;
default:++fail;
}
}
```

Ans: ua=1 ub=1 uc=0

**13. What will be the contents of jTextField1 and jTextField2 after executing the following code:**

```
Strings="SunMicroSystems";
jTextField1.setText(s.length()+""");
jTextField2.setText(s.toLowerCase());
```

Ans:

```
jTextField1:17
jTextField2: sunmicrosystems
```

**14. Give the output of the following code:**

```
int m=100;
while(m>0)
{ if(m<10)break;
m=m-10;
}
System.out.println("mis"+m);
```

Ans: m is 0

### Errors finding and conversion questions:

**1. Thefollowingcodehassomeerrors.Rewritethecorrectedcode.**

```
inti=2, j=5;
whilej>i
{ jTextField1.getText("jisgreater");
j--;++i;
}
JOptionPane.ShowDialog("Hello");
```

Ans:

```
int i=2,j=5;
while( j>i)
{ jTextField1.getText("j is greater");
j--; ++i;
}
JOptionPane.showMessageDialog("Hello");
```

**2. Rewrite the code after making correction.**

```
int sum; value; inct;
intifor(i==0;i<=10;i++)
sum=sum+i;
inct++;
```

Ans:

```
int sum, value, inct;
for(int i=0;i<=10;i++)
sum=sum+i;
inct++;
```

**3. The following code has some error(s). Rewrite the correct code.**

```
inty=3;
switch(y);
{ case1:System.out.print("YesitsOne");
  case>2:System.out.println("YesitsmorethanTwo");
  break;
  case else:
  System.out.print("InvalidNumber);
}
```

Ans:

```
inty=3;
switch(y)
{ case1:System.out.print("YesitsOne");
  break;
  case2:System.out.println("YesitsmorethanTwo");
  break;
  default: System.out.print("InvalidNumber);
}
```

**4. Find out errors and rewrite the code:**

```
M=1;N=0;
For(;m+n<19;++n)
System.out.println("hello");
M=m+10;
```

Ans:

```
m=1;n=0;
for(;m+n<19;++n)
System.out.println("hello");
m=m+10;
```

**5. Rewrite the following program code using a for loop:**

```
int i,sum=0;
while(i<10)
{sum+=i;i+=2;
}
```

Ans:

```
inti, sum=0;
for(i=0;i<10;i+=2)
{sum+=i;
}
```

**6. Rewrite the following code using while loop :**

```
int i,j;
for(i=1;i<=4;i++)
{for(j=1;j<=i;++j)
{ System.out.print(j); }
System.out.println();
}
```

Ans:

```
inti=1, j=0;
while(i<=4)
{ j=1;
while(j<=i)
{ System.out.print(j);
++j; }
i++;
System.out.println();
}
```

**7. Rewrite the following if-else segment using switch-case statement.**

```
charch='A';
if(ch=='A')System.out.println("Account");
if((ch=='C')||(ch=='G'))System.out.println("Admin");
if(ch=='F')System.out.println("Advisor");
```

Ans:

```
charch='A';switch(ch)
{ case 'A':System.out.println("Account");break;
case 'C':
case 'G': System.out.println("Admin");break;
case 'F': System.out.println("Advisor"); }
```

**8. Rewrite the following code using while loop:**

```
int i,j;
for(i=1,j=2;i<=6;i++,j+=2)
System.out.println(i++);System.out.println("Finished!!!");
);
```

Ans:

```
inti=1,j=2;while(i<=
6)
{ System.out.println(i++);
i++;
j+=2;}
```

```
System.out.println("Finished!!!");
```

**9. Rewrite the following code using for loop.**

```
int i=0;
while(++i<20)
{ if( i==8)
  break;
  System.out.println(i++);
}
```

Ans:       inti;  
          for (i=1;i<20;++i)  
          { if( i==8)break;  
          System.out.println(i++);}

**10. Write the equivalent switch case for the following code :**

```
if(num1==1)
jTextField1.setText("Numberisone");
elseIf(num1==2)
jTextField1.setText("Numberistwo");
elseIf(num1==3)
jTextField1.setText("Numberisthree");
else
jTextField1.setText("Numberismorethanthree");
```

Ans:   Switch(num1)  
      { case1:jTextField1.setText("Numberisone");break;  
      case2: jTextField1.setText("Numberistwo");break;  
      case3: jTextField1.setText("Numberisthree");break;  
      default: jTextField1.setText("Numberismorethanthree");  
      }

**11. Write an alternative code(Using if)of given code that saves on number of comparisons.**

```
if(a==0)
System.out.println("zero");
if(a==1)
System.out.println("one");
if(a==2)
System.out.println("two");
if(a==3)
System.out.println("three");
```

Ans:  
      if(a==0)System.out.println("zero");  
      else if(a==1)System.out.println("one");  
      else if(a==2)System.out.println("two");  
      else if(a==3)System.out.println("three");

**Application Design Questions:**

**Q1: Design an application for Theatre Booking system and answer the following questions?**

- A. When the user select different seat type, then its price should be displayed in the Label.
- B. If the user enters an invalid no of seats i.e. less than 1, then an error message should be displayed in the dialogbox.
- C. When the user click at the Book Seats button, then total amount (calculated as no. of seats X price per seat) should be displayed along with payment method, next to the push button.

Price per seat depend upon the seat type:

Stall	625/-
Circle	750/-
UpperCircle	850/-
Box	1000/-

**Ans:**

- ```
(a) if(jRadioButton1.isSelected()==true)
    jLabel2.setText("625");
    if(jRadioButton2.isSelected()==true)
    jLabel2.setText("750");
    if(jRadioButton3.isSelected()==true)
    jLabel2.setText("850");
    if(jRadioButton4.isSelected()==true)
    jLabel2.setText("1000");
```
- ```
(b) int s=Integer.parseInt(jTextField1.getText());
    if(s<1)
    JOptionPane.showMessageDialog(null,"Error");
```
- ```
(c) int s=Integer.parseInt(jTextField1.getText());
    int p=Integer.parseInt(jLabel2.getText());
    int tp=s*p;
    if(jRadioButton5.isSelected()==true)
    jLabel5.setText("Cash Payment of " +tp);
    if(jRadioButton6.isSelected()==true)
    jLabel5.setText("Visa Payment of " +tp);
    if(jRadioButton7.isSelected()==true)
    jLabel5.setText("American Express Payment of " +tp);
    if(jRadioButton8.isSelected()==true)
    jLabel5.setText("Master Card Payment of " +tp);
```

**Q2 : Design the following application and answer the questions that follow :**

**ICICI Bank**

Principal  Time

Rate

Senior Citizen

Fixed Deposit

Recurring Deposit

Interest  Amount

- (a) Write the code for the Clear button to clear all the text fields and checkbox. Set the default choice in the radiobutton as FixedDeposit.
- (b) Write the code for the calculate button to calculate compound interest and amount and display the values in the txt Interest and txt Amount depending on principal, rate and time.

Rate is calculated based on the time according to the following table:

| Account          | Time     | Rate |
|------------------|----------|------|
| FixedDeposit     | <=1      | 10%  |
|                  | >1and<=5 | 12%  |
|                  | >5       | 15%  |
| RecurringDeposit | <=2      | 11%  |
|                  | >2and<=7 | 12%  |
|                  | >7       | 15%  |

An additional rate of 2% is given to the senior citizens i.e. if the Senior citizen (chkSR checkbox) is checked.

**Ans:**

- ```
(a) jTextField1.setText("");
    jTextField2.setText("");
    jTextField3.setText("");
    jRadioButton1.setSelected(true);
    jCheckBox1.setSelected(false);

(b) int p= Integer.parseInt(jTextField1.getText());
    int t= Integer.parseInt(jTextField2.getText());
    int r=0;
    if(jRadioButton1.isSelected())
    { if(t<=1)
      r=10;
      else if(t>1 && t<=5)
      r=12;
      else
      r=15; }
    else
    { if(t<=2)
      r=11;
      else if(t>2 && t<=7)
      r=12;
      else
      r=15; }
    if (jCheckBox1.isSelected())
    r=r+2;
    float ci= p*Math.pow((1+(r/100)),t);
    float amt= p+ci;
    txtInterest.setText(""+ci);
```



```
txtAmount.setText(""+amt);
```

**Q 3: Consider the following application and answers the following questions:**

The screenshot shows a Java Swing window titled "Student Record". It contains two text input fields for "First Term Marks" and "Second Term Mark". To the right of these fields are two radio buttons labeled "Medical" and "Non Medical". Below the input fields is a checkbox labeled "NCC Cadet". At the bottom of the window are three buttons: "Calculate Percentage", "Calculate Grade", and "Exit". Below the buttons are two text output fields labeled "Percentage" and "Grade".

The grading criteria for the two streams are given below:

Stream	Percentage	Grade
Medical	$\geq 80$	A
	60-80	B
	$< 60$	C
Non-Medical	$\geq 75$	A
	50-75	B
	$< 50$	C

- Write code for Calculate Percentage button to calculate the Percentage after finding the total marks of I term and II term. Also ensure that NCC cadet gets an increment of 3% in their percentages.
- Write code for Calculate grade button to calculate the grade depending up on on the stream selected according to the given criteria.

**Ans:**

- ```
(a) int f= Integer.parseInt(jTextField1.getText());
    int s= Integer.parseInt(jTextField2.getText());
    int tot = f+s;
    float p= tot/2;
    if(jCheckBox1.isSelected())
        p=p+3;
        jLabelp.setText(""+p);

(b) String g;
    if(jRadioButton1.isSelected())
        { if(p>=80)
            g="A";
          else if(p>=60 &p<80)
            g="B";
          else
            g="C";
        }
    else
        { if(p>=75)
            g="A";
          else if(p>=50 &p<75)
            g="B";
          else
            g="C";
        }
```

```

}
jLabelp.setText(""+p);
jLabelg.setText(""+g);

```

**Q 4: Mr. Madhav works in a construction company. To calculate total wages he has developed the following GUI in NetBeans.**

Male and female workers are respectively paid Rs. 150/- per day and Rs. 170/- per day. Skilled workers are paid extra at the rate of Rs. 100/- day. Male and female workers from rural areas are paid 10% less per day.

- When Calculate Wage button is clicked, the total wages is calculated as per the given criteria and displayed in total wage textbox.
- When Clear button is clicked, all the textboxes should be cleared and radio button, checkbox should be selected.
- Close the application when Quit button is pressed.

Ans:

```

(a) int w=0;
    int d =Integer.parseInt(jTextField2.setText());
    if(jRadioButton1.isSelected())
        w=150;
    else
        w=170;
    if(jCheckBox1.isSelected())
        w=w+100;
    if(jRadioButton3.isSelected())
        w=w-(w*10)/100;
        int cw=d*w;
    jLabel6.setText(""+cw);

```

```

(b) jTextField1.setText("");
    jTextField2.setText("");
    jRadioButton1.setSelected(false);
    jRadioButton2.setSelected(false);
    jRadioButton3.setSelected(false);
    jRadioButton4.setSelected(false);
    jCheckBox.setSelected(flase);

```

```

(c) System.exit(0);

```

**Q 5: Mr. JigneshDesai an owner of Alpha Chemicals PVT ltd has asked his programmer Swetato develop the following GUI application in Netbeans:**

ServiceChargesRatesareasfollows:

| ClassofCity | RateofServiceCharges |
|-------------|----------------------|
| i           | 10%ofsalesprice      |
| ii          | 15%ofsalesprice      |
| iii         | 20%ofsalesprice      |

Writejavacodeforthefollowing:

- To calculate service charges depending on the selection of radio button. This code will execute after click on the calculate service charges?
- To calculate net price when Calculate Net price button will be clicked.
- When exit button will be clicked application should be automatically closed.

Ans:

```
(a) float q=Float.parseFloat(jTextField2.getText());
float p=Float.parseFloat(jTextField3.getText());
float sp=q*p;
jLabelsp.setText(""+sp);
float sc;
if(jRadioButton1.isSelected())
sc=(10*sp)/100;
else if(jRadioButton2.isSelected())
sc=(15*sp)/100;
else
sc=(20*sp)/100;
jLabelsc.setText(""+sc);
```

```
(b) float sp=Float.parseFloat(jLabelsp.getText());
float sc=Float.parseFloat(jLabelsc.getText());
float np=sp+sc;
jLabelnp.setText(""+np);
```

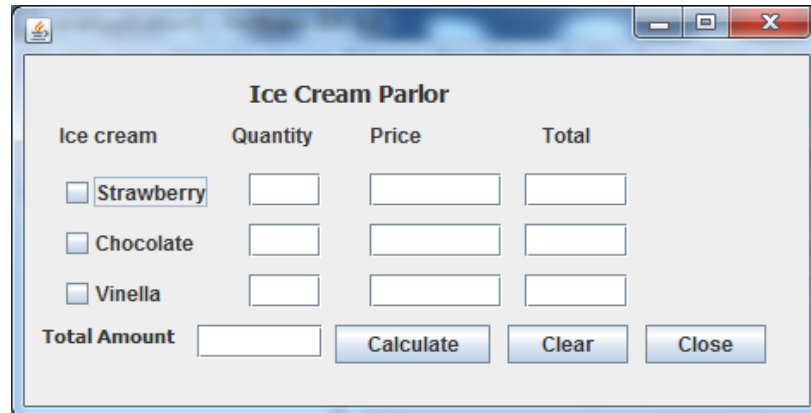
```
(c) System.exit(0);
```

**Q6 :** Assume the following interface built using Netbeans used for bill calculation of a ice- cream parlor. The parlor offers three varieties of ice-cream - vanilla, strawberry, chocolate. Vanilla ice- cream costs Rs. 30, Strawberry Rs. 35 and Chocolate Rs. 50. A customer can chose one or more ice-creams, with quantities more than one for each of the variety chosen. To calculate the bill parlor manager selects the appropriate check boxes according to the varieties of ice-cream chosen by the

customer and enter their respective quantities.

**Write Java code for the following:**

- On the click event of the button 'Calculate', the application finds and displays the total bill of the customer. It first displays the rate of various ice-creams in the respective text fields. If a user doesn't select a check box, the respective ice-cream rate must become zero. The bill is calculated by multiplying the various quantities with their respective rate and later adding them all.
- On the Click event of the clear button all the text fields and the check boxes get cleared.
- On the click event of the close button the application gets closed.



Ans:

```
(a) private void jBtnCalculateMouseClicked(java.awt.event.MouseEvent evt)
{intr1,r2,r3,q1,q2,q3,a1,a2,a3,gt;
if(jchkStrawberry.isSelected())
    jTxtPriceStrawberry.setText("35");
if(jChkChocolate.isSelected())
    jTxtPriceChocolate.setText("50");
if(jChkVinella.isSelected())
    jtxtPriceVinella.seteText("30");
r1=Integer.parseInt(jTxtPriceStrawberry.getText());
r2=Integer.parseInt(jTxtPriceChocolate.getText());
r3=Integer.parseInt(jtxtPriceVinella.getText());
q1=Integer.parseInt(jTxtQtyStrawberry.getText());
q2=Integer.parseInt(jTxtQtyChocolate.getText());
q3=Integer.parseInt(jTxtQtyVinella.getText());
a1=r1*q1;
a2=r2*q2;
a3=r3*q3;
jTxtAmtStrawberry.setText(""+a1);
jTxtAmtChocolate.setText(""+a2);
jTxtAmtVinella.setText(""+a3);
gt=a1+a2+a3;
jTxtTotalAmt.setText(""+gt);
}
```

```
(b) private void jBtnClearActionPerformed(java.awt.event.ActionEvent evt)
{
jTxtPriceStrawberry.setText("");
jTxtPriceChocolate.setText("");
jtxtPriceVinella.seteText("");
}
```

```

jTxtQtyStrawberry.setText("");
jTxtQtyChocolate.setText("");
jTxtQtyVinella.setText("");
jTxtAmtStrawberry.setText("");
jTxtAmtChocolate.setText("");
jTxtAmtVinella.setText("");
jchkStrawberry.setSelected(false);
jChkChocolate.setSelected(false);
jChkVinella.setSelected(false);
}
(c) private void jBtnCloseActionPerformed(java.awt.event.ActionEvent evt)
{
System.exit(0);
}

```

### Question Answers – Web Applications:

1. Identify the web browser software from the following options:

- (a) Apache Web Server (b) MS Word (c) HTML (d) Mozilla Firefox

Ans. (d) Mozilla Firefox

2. A ..... document is created by web server whenever a browser requests the documents.

- (a) active (b) static (c) dynamic (d) none of the above

Ans. (c) Dynamic

3. A \_\_\_\_\_ document is a fixed content document that is created by web server whenever a browser requests the documents.

- (a) active (b) static (c) dynamic (d) none of the above

Ans. (b) Static

4. Identify the web server software from the following options:

- (a) Apache (b) MS Word (c) HTML (d) Mozilla Firefox

Ans. (a) Apache

5. The address of a resource on the net is known as:

- (a) ISP (b) HTTP (c) URL (d) WWW

Ans. (c) URL

6. A program that serves requested HTML files and pages.

- (a) Web Address (b) Web Page (c) Web Server (d) None of these

Ans. (c) Web Server

#### 7. What is Uniform Resource Locator?

Ans: The uniform resource locator (URL) is the unique identifier of a web page. The address or URL of the current page you are on appears in the "Address Bar" of the web browser. You can go directly to a web page if you know its URL by simply typing the URL in the address bar. The most general form of a URL syntax is as follows:

Protocol://domain name/<directory path>/<object name>

For example: [http://www.openoffice.org/dev\\_docs/features/rc2.html](http://www.openoffice.org/dev_docs/features/rc2.html)

#### 8. What is Web Server? Explain its main functions and also give examples.

Ans: Web server delivers (serves) content, such as web pages, using the Hypertext Transfer Protocol (HTTP), over the World Wide Web. Web servers are computers on Internet on which Web pages are stored. It is equipped with a program which listens request from the web client (Web Browser) and sends web pages. The major functions of a web server are-

- Serving of Web pages on request of Browser.
- Controlling access and security of the server.

- Monitoring and logging server access statistics.

Some most popular Web Servers are Apache Web Server (Open Source software for Linux), MS Internet Information Server (IIS) and Netscape Enterprise Web Server etc.

### 9. What is Web Browser? Explain its main functions and also give examples.

**Ans:** A web browser is a client that initiates communication by making a request for a specific resource. The server then responds with the content of that resource, or an error message if unable to do provide the contents due to any reason.

- It provides an interface to interact with Internet.
- It send request to Web Server for specified web page and displays at client machine.
- It also maintains History of visited Web Pages and may provide tools for easy web surfing.

Some commonly used Web Browsers are Internet Explorer, Mozilla FireFox, Google Chrome, Opera etc.

### 10. HTML tags must be written within:(a) <> (b) { } (c) [ ] (d) ( )

**Ans:** (a) <>

### 11. Explain the various elements of HTML?

HTML is made up of elements called Tags and Attributes, which specifies the format of the documents.

- A Tag is a coded HTML command that indicates how parts of web page should be displayed.
- Tags are not case sensitive and contained within Angle Bracket <> i.e. <HTML> and <html> are same.
- Most of the Tags are used in pair i.e. begin and end of the Tag. End Tag are begins with / character.  
e.g. <Head> ..... </Head>
- An Attribute is a special word inside a Tag, which specifies additional information to Tags such as colour, alignment etc.
- Most of the Attributes are followed by a Value (number or words).  
e.g. <BODY BGCOLOR = "RED">

### 12. What are container and empty Tags?

**Ans.** These are two types of Tags are used in HTML.

Container Tags : These HTML Tag written in pair i.e. starting <.> as well as ending </...> .

Ex. <Title> My First Page </Title>

Empty Tag : These Tags require just a starting tag and not ending tag.

Ex. <HR>, <BR><IMG > etc.

### 13. Give two differences between HTML and XML.

**Ans:** The three differences between HTML and XML are:

- HTML is designed to display data and hence, focused on the 'look' of the data, whereas XML is designed to describe and carry data and hence, focuses on 'what data is'.
- In HTML tags are predefined, while in XML, tags can be created as per needs.
- HTML tags are not case sensitive, whereas XML tags are case sensitive

### 14. What is an unordered list?

**Ans:** Bulleted/unordered list <UL> tag is used to indicate a list item as contained in an unordered or bulleted form.

### 15. What is ordered list?

**Ans:** The numbered/ordered list <OL> tag is used to indicate a list item as contained in an ordered or numbered form.

### 16. What is table? What are the basic commands for creating a table?

**Ans:** Table is a collection of rows and column.

Followings are important tags

<Table> :- used to give identification to a table

<TH> :- To provide headings in a table

<TR>:- (Table Row) to create Row in a table

<TD> :- (Table Data) to create columns in a row

**17. What do you understand by ALINK? Explain with an example.**

**Ans:** Links which are currently being visited in web page are known as Active Links (ALINK). Example:

```
<BODY TEXT = "#FFFFFF" ALINK="#FF0000">  
<A HREF="www.kvsangathan.nic.in"> Kendriya Vidyalaya Sangathan </A><BR>  
<A HREF = www.cbse.nic.in> Central Board of Secondary Education </A>  
</BODY>
```

**18. What is FORM tag? Explain with example.**

**Ans:** To create or use forms in a web page <FORM> tag is used. Form is means to collect data from the site visitor. It is done with the help of controls that collect data and send it over.

Example: <FORM method = "POST" action=submitform.asp>

**19. What is INPUT tag? Explain with example.**

**Ans:** Text boxes are single line text input controls that are created using <INPUT> tag whose TYPE attribute has a value as "Text". Example:

```
<FORM method = "POST" action=submitform.asp>  
First Name:<INPUT TYPE="text" NAME = "fname"/><BR>  
Last Name:<INPUT TYPE="text" NAME = "lname" />  
</FORM>
```

**20. What is the purpose of select tag?**

**Ans:** <SELECT> tag is used to create a drop down box in which many options are available; user can make selection from the list. Example:

```
<SELECT name = "stream">  
<OPTION value="Science"> Science</OPTION>  
<OPTION value="Commerce"> Commerce </OPTION>  
<option value="Humanities"> Humanities </OPTION>  
</SELECT>
```

**21. What is XML?**

**Ans.** - XML is eXtensible Markup Language which allows creating application specific structured document by allowing creation of new tags. These structured documents can later be presented in human-understandable manner in different ways.

**22. Describe features of XML**

**Ans. - Features of XML:**

- XML is designed to carry data not to display data.
- XML is self-descriptive. Tags are not pre-defined; rather they are created to describe the content in appropriate manner.
- XML is free and extensible and XML is platform independent.
- XML can be used to create new languages, since it is a Meta language.
- XML is supported and recommended by World Wide Web Consortium (W3C).

## UNIT- 3 : Questions & Answers

### Very Short answers types questions

1. **Which of the following will give the same answer irrespective of the NULL values in the specified column:**
  - a. MIN()
  - b. MAX()
  - c. SUM()
  - d. None of the above
2. **An aggregate function:**
  - a. Takes a column name as its arguments
  - b. May take an expression as its argument
  - c. Both (a) and (b)
  - d. None of (a) and (b)
3. **HAVING is used in conjunction with**
  - a. WHERE
  - b. GROUP BY
  - c. Aggregate functions
  - d. None of the above
4. **In the FROM clause of a SELECT statement**
  - a. Multiple Column Names are specified.
  - b. Multiple table names are specified.
  - c. Multiple Column Names may be specified.
  - d. Multiple table names may be specified.
5. **JOIN in RDBMS refers to**
  - a. Combination of multiple columns
  - b. Combination of multiple rows
  - c. Combination of multiple tables
  - d. Combination of multiple databases
6. **Equi-join is formed by equating**
  - a. Foreign key with Primary key
  - b. Each row with all other rows
  - c. Primary key with Primary key
  - d. Two tables
7. **Referential integrity**
  - a. Must be maintained
  - b. Cannot be maintained
  - c. Is automatically maintained by databases
  - d. Should not be maintained
8. **A Primary key column**
  - a. Can have NULL values
  - b. Can have duplicate values
  - c. Both (a) and (b)
  - d. Neither (a) nor (b)
9. **Primary Key of a table can be**
  - a. Defined at the time of table creation only.
  - b. Defined after table creation only.
  - c. Can be changed after table creation
  - d. Cannot be changed after table creation
10. **Two SELECT commands in a UNION**
  - a. Should select same number of columns.
  - b. Should have different number of columns
  - c. Both (a) and (b)
  - d. Neither (a) nor (b)

**Answers : 1-c, 2-c, 3-b, 4-a, 5-c, 6-a, 7-a, 8-d, 9-a, 10-c**



**Q1. What do you mean by a Database Management System?**

**Ans.** Database Management is a collection of programs and files that allow a user to define structure of a database, store data into it, modify the structure and manipulate the data.

**Q2. What do you mean by Relational database?**

**Ans.** Relational Database is a type of database in which relation (table) is used to store data.

**Q3. What is a foreign key?**

**Ans.** A non-key attribute or column of a table whose value is derived from the primary key of another table.

**Q4. What is primary key?**

**Ans.** Primary key is a unique key in a relation which can uniquely identify a tuple (row) in a given relation.

**Q5. What is SQL?**

**Ans.** SQL stands for structured query language. This language is used to create, manage table and manipulate stored records in a table.

**Q6. What is referential integrity?**

**Ans.** This is a rule which ensures that in DBMS relationships between records in related tables are valid. And that user don't accidentally delete or change related data.

**Q7. What is MySQL?**

**Ans.** MySQL is an open source RDBMS which uses SQL.

**Q8. What is DDL?**

**Ans.** DDL provides commands to define or redefine the schema of a table. Table is created, altered and dropped using DDL.

**Q9. What are DML commands?**

**Ans-** DML commands are used to manipulate data stored in a table. Insertion, deletion and modifications are possible using DML commands.

**Q11. What is null value in MySql?**

**Ans-** If a column in a row has no value, then column is said to be null.

**Q12. Which keyword eliminates redundant data in from a query result?**

**Ans-** DISTINCT

**Q13. How would you display system date as the result of a query?**

**Ans-** CURDATE()

**Q14. What is NOW() function in MySql?**

**Ans-** It returns the current date and time.

**Q15. What is NOT NULL constraint?**

**Ans-** NOT NULL constraints impose a condition that value of a row cannot be left blank.

**Q16. Identify the error?**

DELETE ALL FROM TABLE EMP;

**Ans:** There is no need to write ALL and TABLE word in above query. Correct form is-DELETE FROM EMP;

**Q17. Differentiate WHERE and HAVING clause?**

**Ans-** Where clause is used to select particular rows that satisfy condition whereas having clause is used in connection with aggregate function, group by clause.

**Q 18. Why is it not allowed to give String and Date type arguments for SUM() and AVG() functions?**

**Ans:**String and dates are not real numbers that we calculate so sum() or avg() functions are not valid for them.

**Q 19. What is default, Autocommit mode in MySQL?**

**Ans:**By default, Autocommit mode is on in MySQL.

**Q 20. Can where be added a savepoint in a transaction? Ans :**We can add a savepoint anywhere in a transaction.

**Q 21. How are NULL values treated by aggregate functions?**

**Ans:**None of the aggregate functions takes NULL into consideration. NULL is simply ignored by all the aggregate functions.

**Q22. There is a column C1 in a table T1. The following two statements: SELECT COUNT(\*) FROM T1; and SELECT COUNT(C1) from T1; are giving different outputs. What may be the possible reason?**

**Ans :**There may be a null value.

**Q23. What is the purpose of GROUP BY clause?**

**Ans:** GROUP BY: GROUP BY clause is used in a SELECT statement in conjunction with aggregate functions to group the result based on distinct values in a column.

**Q 24. What is the difference between HAVING and WHERE clauses? Explain with the help of an example.**

**Ans:**WHERE Vs HAVING: WHERE is used to put a condition on individual row of a table whereas HAVING is used to put condition on individual group formed by GROUP BY clause in a SELECT statement.

**Q24. What is a foreign key? What is its importance?**

**Ans:**Foreign Key: It is a column of a table which is the primary key of another table in the same database. It is used to enforce referential integrity of the data.

**Q 25. What are constraints? Are constraints useful or are they hindrances to effective management of databases?**

**Ans:**These are the rules which are applied on the columns of tables to ensure data integrity and consistency. These play very important role for tables so are not hindrances.

**Q26. In a database there is a table Cabinet. The data entry operator is not able to put NULL in a column of Cabinet? What may be the possible reason(s)?**

**Ans :**Not NULL or Primary key constraints used.

**Q 27. In a database there is a table Cabinet. The data entry operator is not able to put duplicate values in a column of Cabinet? What may be the possible reason(s)?**

**Ans:**Primary key constraint used.

**Q28. Do Primary Key column(s) of a table accept NULL values?**

**Ans:**No.

**Q29. What are the differences between DELETE and DROP commands of SQL?**

**Ans:**Delete is used for row removing while drop is used for removing complete table.

**Q 30. What is HAVING clause?**

**Ans:**HAVING clause is used in conjunction with GROUP BY clause in a SELECT statement to put condition on groups.

**Q31. What is Referential Integrity?**

**Ans:**The property of a relational database which ensures that no entry in a foreign key column of a table can be made unless it matches a primary key value in the corresponding column of the related table.

**Q32. What is Union used for?**

**Ans:**Union is an operation of combining the output of two SELECT statements.

**Q33.What is ALTER TABLE?**

**Ans:**ALTER TABLE command can be used to Add, Remove, and Modify columns of a table. It can also be used to add and Remove constraints.

**Q 34. What is DROP TABLE?**

**Ans:**DROP TABLE command is used to delete tables.

**Q35. What function is used whenever a condition involves an aggregate function?**

**Ans:**whenever a condition involves an aggregate function, then we use HAVING clause in conjunction with GROUP BY clause.

**Short answers types questions**

**Q1. How SQL commands are classified?**

**Ans-**SQL Commands are classified into three categories

- (i) **Data Definition Language (DDL)**-Commands that allow us to perform tasks related to data definition. E.g. creating, altering and dropping
- (ii) **Data Manipulation Language (DML)** - Commands that allows us to perform data manipulation e.g retrieval, insertion, and modification of data stored in a database.
- (iii) **Transaction Control Language (TCL)** - Commands that manages and controls the transactions.

**Q2. What is difference between char and varchar?**

**Ans-**The CHAR datatypes specifies a fixed length character string.When a column is given datatype as CHAR(n) then MySQL ensures that all values stored in that column have this length.But on other hand when a column is given datatype as VARCHAR(n) ,then the maximum size of a value in this column stores exactly what we specify.

**Q3. What do you understand by degree and cardinality of a relation in relational data base?**

**Ans-** The number of attributes in a relation is called Degree of arelation and number of records in a table is called cardinality in relational data base.

**Q4. What do you understand by the candidate key ?**

**And-** Candidate Key: All attribute combinations inside a relation that can serve as primary key(uniquely identifies a row in a relation) are Candidate Keys as they are candidates for the primary key position.

**Q 5. Why do understand by transaction COMMIT and ROLLBACK?**

**Ans-** COMMITing a transaction means all the steps of a transaction are carried out successfully and all data changes are made permanent in the database. Transaction ROLLBACK means transaction has not been finished completely and hence all data changes made by the transaction in the database if any, are undone and the database returns to the state as it was before this transaction execution started.

**Q 6. What do you understand by ACID properties of database transaction?**

**Ans.** -To ensure the data-integrity, the database system maintains the following properties of transaction. The properties given below are termed as ACID properties-an acronym derived from the first letter of each of the properties.

- **Atomicity** - This property ensures that either all operations of the transactions are reflected properly in the database, none are. Atomicity ensures either all-or- none operations of a transaction are carried out.
- **Consistency** - This property ensures that database remains in a consistent state before the start of transaction and after the transaction is over.
- **Isolation** - Isolation ensures that executing transaction execution in isolation i.e. is

unaware of other transactions executing concurrently in the system.

- **Durability** - This property ensures that after the successful completion of a transaction i.e. when a transaction COMMITs, the changes made by it to the database are permanently persist.

### Q 7. What TCL commands are supported by SQL?

Ans. -SQL supports following TCL commands

- **BEGIN Or START TRANSACTION**-Marks the beginning of a transaction
- **COMMIT**-Ends the current transaction by saving database changes and starts a new transaction.
- **ROLLBACK**-Ends the current transaction by discarding changes and starts a new transaction.
- **SAVEPOINT**-Defines breakpoints for the transactions to allow partial rollbacks.
- **SET AUTOCOMMIT**-Enables or disables the default autocommit mode.

### Q8. What is transaction? How multiple transactions are executed?

Ans. -A transaction is a logical unit of a work that must succeed or fail in its entirety. It is an atomic operation which can be divided into smaller operations. Multiple transactions can be executed in one of the following two ways: Serial execution (one by one) or Concurrent execution.

## Query Based Question and Answers

### Q1. Consider a database LOANS with the following table:

Table: LOANS

AccNo	Cust_Name	Loan_Amount	Installments	Int_Rate	Start_Date	Interest
1	R.K.Gupta	300000	36	12.00	19-07-2009	1200
2	S.P.Sharma	500000	48	10.00	22-03-2008	1800
3	K.P.Jain	300000	36	NULL	08-03-2007	1600
4	M.P.Yadav	800000	60	10.00	06-12-2008	2250
5	S.P.Sinha	200000	36	12.50	03-01-2010	4500
6	P.Sharma	700000	60	12.50	05-06-2008	3500
7	K.S.Dhall	500000	48	NULL	05-03-2008	3800

Answer the following questions.

#### Create Database and use it-

1. Create the database LOANS. Mysql> Create Database LOANS;
2. Use the database LOANS. Mysql> Use LOANS;

#### Create Table and Insert a record-

3. Create the table Loans and insert tuples in it.

Mysql> Create Table Loans

(AccNo int primary key,  
Cust\_Name varchar(30),  
Loan\_Amount int,  
Installment int, Int\_Rate number(5,3),  
Start\_Date date, Interest number(7,2));

Mysql> Insert into Loans values

(1,'R.K. GUPTA',300000,36,12.0,'2009-07-19');

#### Simple Select

4. Display the details of all the loans.  
Mysql> Select \* from Loans;
5. Display the AccNo, Cust\_Name, and Loan\_Amount of all the loans.  
Mysql> Select AccNo,Cust\_Name,Loan\_Amount from Loan\_Acc;

### Conditional Select using Where Clause

6. Display the details of all the loans with less than 40 instalments.  
Mysql> Select \* from Loans where Instalment <40;
7. Display the AccNo and Loan\_Amount of all the loans started before 01-04-2009.  
Mysql> Select AccNo, Loan\_Amount from Loans  
where Start\_Date <'2009-04-01';
8. Display the Int\_Rate of all the loans started after 01-04-2009.  
Mysql> Select Int\_Rate from Loans where Start\_date>'2009-04-01';

### Using NULL

9. Display the details of all the loans whose rate of interest is NULL.  
Mysql> Select \* from Loans where Int\_rate is NULL;
10. Display the details of all the loans whose rate of interest is not NULL.  
Mysql> Select \* from LOANS where Int\_rate is not NULL;

### Using DISTINCT Clause

11. Display the amounts of various loans from the table LOANS. A loan amount should appear only once.  
Mysql> Select DISTINCT Loan\_Amount from LOANS;
12. Display the number of installments of various loans from the table LOANS. An instalment should appear only once..  
Mysql> Select DISTINCT Instalment from LOANS;

### Using Logical Operators (NOT, AND, OR)

13. Display the details of all the loans started after 31-12-2008 for which the number of instalments are more than 36.  
Mysql> Select \* from LOANS  
where Start\_Date>'2008-12-31' and Instalment>36;
14. Display the Cust\_Name and Loan\_Amount for all the loans which do not have number of instalments 36.  
Mysql> Select Cust\_Name, Loan\_Amount from LOANS where Instalment <>36;
15. Display the Cust\_Name and Loan\_Amount for all the loans for which the loan amount is less than 500000 or int\_rate is more than 12.  
Mysql> Select Cust\_Name, Loan\_Amount from LOANS  
where Loan\_Amount <500000 or Int\_rate>12;
16. Display the details of all the loans which started in the year 2009.  
Mysql> Select \* from LOANS where Year(Start\_Date)=2009;
17. Display the details of all the loans whose Loan\_Amount is in the range 400000 to 500000.  
Mysql> Select \* from LOANS where Loan\_Amount between 400000 and 500000;
18. Display the details of all the loans whose rate of interest is in the range 11% to 12%.  
Mysql> Select \* from LOANS where Int\_Rate between 11 and 12;

### Using IN Operator

19. Display the Cust\_Name and Loan\_Amount for all the loans for which the number of installments are 24, 36, or 48. (Using IN operator)  
Mysql> Select Cust\_Name, Loan\_Amount from LOANS  
where Instalment IN(24,36,48);

## Using LIKE Operator

20. Display the AccNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name ends with 'Sharma'.  
Mysql> Select AccNo, Cust\_name from LOANS where Cust\_Name like '%Sharma';
21. Display the AccNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name ends with 'a'.  
Mysql> Select AccNo, Cust\_name, Loan\_Amount from LOANS  
where Cust\_Name like '%a';
22. Display the AccNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name contains 'a'.  
Mysql> Select AccNo, Cust\_name, Loan\_Amount from LOANS  
where Cust\_Name like '%a%';
23. Display the AccNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name does not contain 'P'.  
Mysql> Select AccNo, Cust\_name, Loan\_Amount from LOANS  
where NOT (Cust\_Name like '%P%');
24. Display the AccNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name contains 'a' as the second last character.  
Mysql> Select AccNo, Cust\_name, Loan\_Amount from LOANS  
where Cust\_Name like '%a\_';

## Using ORDER BY clause

25. Display the details of all the loans in the ascending order of their Loan\_Amount.  
Mysql> Select \* from LOANS ORDER BY Loan\_Amount;
26. Display the details of all the loans in the descending order of their Start\_Date.  
Mysql> Select \* from LOANS ORDER BY Start\_date DESC;
27. Display the details of all the loans in the ascending order of their Loan\_Amount and within Loan\_Amount in the descending order of their Start\_Date.  
Mysql> Select \* from LOANS ORDER BY Loan\_Amount, Start\_Date DESC;

## Using UPDATE, DELETE, ALTER TABLE

28. Put the interest rate 11.50% for all the loans for which interest rate is NULL.  
Mysql> Update LOANS SET Int\_Rate =11.50 Where Int\_Rate IS NULL;
29. Increase the interest rate by 0.5% for all the loans for which the loan amount is more than 400000.  
Mysql> Update LOANS SET Int\_Rate= Int\_Rate+0.5 Where Loan\_Amount >400000;
30. For each loan replace Interest with (Loan\_Amount\*Int\_Rate\*Instalments) /12\*100.  
Mysql> Update LOANS SET Interest=(Loan\_Amount\*Int\_Rate\*Instalments) /12\*100;
31. Delete the records of all the loans whose start date is before 2007.  
Mysql> Delete From LOANS Where Year(Start\_Date)<2007;
32. Delete the records of all the loans of 'K.P. Jain'  
Mysql> Delete From LOANS Where Cust\_Name='K.P.Jain';
33. Add another column Category of type CHAR(1) in the Loan table.  
Mysql> Alter Table LOANS ADD (Category CHAR(1));

## Using Aggregate Functions

34. Display the sum of all Loan Amount for whose Interest rate is greater than 10.

mysql> Select sum(Loan\_Amount) from LOANS Where Interest >10;

35. Display the Maximum Interest from Loans table.

mysql> Select Max(Interest) from LOANS;

36. Display the count of all loan holders whose name is ending with 'Sharma'.

mysql> Select Count(\*) from LOANS Where Cust\_Name Like '%Sharma';

37. Display the count of all loan holders whose Interest is Null.

mysql> Select Count(\*) from LOANS Where Interest Is NULL;

### Using Group By Clause

38. Display the Interest wise details of Loan Account Holders.

mysql> Select \* from LOANS Group By Interest;

39. Display the Interest wise details of Loan Account Holders with at least 10 installments remaining.

mysql> Select \* from LOANS Group By Interest Having Instalment>=10;

40. Display the Interest wise count of all loan holders whose Installment due is more than 5 in each group.

mysql> Select Count(\*) from LOANS Group By Interest Having Instalment>5;

**Q23. Consider the following tables Item and Customer. Write SQL commands for the statement (1) to (4) and give outputs for SQL queries (5) to (6)**

**Table: ITEM**

ItemCode	ItemName	Price
PC01	PC HP	35000
LC01	Laptop Sony	55000
PC02	PC ASUS	32000
PC03	PC HCL	37000
LC02	Laptop Toshiba	57000

**Table: CUSTOMER**

CustCode	CustName	City	ItemCode
C01	N.Roy	Delhi	LC02
C06	H.Singh	Mumbai	PC03
C12	R.Pandey	Delhi	PC02
C15	C.Sharma	Delhi	LC01
C16	K.Agrawal	Bangalore	PC01

1. To display the details of those Customers whose city is Delhi and purchased 'PC HP' .
2. To display the details of Item which is purchased by custCode C15.
3. To display the Customer Code Customer Name, City and Item Name and Price for all sales.
4. To display the details of customer who purchased PC of any company.
5. SELECT CustName, City from Customer, Item  
Where Customer.ItemCode= Item.ItemCode And ItemName='PC HP';
6. SELECT CustName, City FROM Customer, Item  
Where Item.ItemCode= Customer.ItemCode And City='Delhi';

**Ans-**

1. SELECT CustCode, CustName, City FROM Customer, Item  
Where Customer.ItemCode= Item.ItemCode And City="Delhi" And ItemName="PC HP";
2. SELECT ItemCode, ItemName, Price FROM Customer, Item  
Where Customer.ItemCode= Item.ItemCode And CustCode='C15';
3. SELECT CustCode, CustName, City, ItemName, Price FROM Customer, Item  
Where Customer.ItemCode= Item.ItemCode ;
4. SELECT CustCode, CustName, City FROM Customer, Item  
Where Customer.ItemCode= Item.ItemCode And And ItemName LIKE "PC%";

5.

CustName	City
K.Agrawal	Bangalore

6.

CustName	City
N.Roy	Delhi
R.Pandey	Delhi
C.Sharma	Delhi

## UNIT 4 : Questions & Answers

### Q1. What is e-Governance?

Ans: E-Governance is the use of a range of modern information and communication technologies such as internet, local area network, mobiles etc. by government to improve effectiveness of their services.

### Q2. What is e-Learning?

Ans: E-Learning is a delivery of learning, training or education program by electronic means.

### Q3. What do you mean by E-Business?

Ans: E-business is a term used to describe business run on the computer using modern IT practices.

### Q4. What are objectives of E- Governance?

Ans: Objectives of E- Governance are:-

- Improves Government processes.
- Increases the efficiency and speed in a transparent manner.
- Simplify administrative transactions.
- Citizen can participate in decision making process.

### Q5. List the advantages of E Governance.

Ans: Advantages are :-

- Improved quality of information and information supply.
- Reduction of process time.
- Cost reduction.
- Improved service level.
- Increased efficiency.

### Q6. How E-learning is useful to learner.

Ans:

- It enables students to complete training conveniently at off-hours or from home.
- Self pacing for slow and quick learners reduces stress and increased satisfaction.
- Interactivity engage users, pushing them rather than pulling them through training etc.

### Q7. Why E-learning is preferred?

Ans: E-learning is preferred because it provides faster learning at reduced cost, increased accessed to learning and clear accountability for all participants in the learning process.

### Q8. What are the importance of E-business?



Ans:

- Reductions in transactions and other cost.
- Un-shortened supply chain.
- Improved customer service.
- Increased productivity/efficiency.
- Access to international markets.

**Q9. What do you think e-learning courses have high dropout rate?**

Ans: the possible reasons for this are

- Lack of interaction.
- Lack of proper follow-up.

**Q10. Write three web portals of (1) e-commerce (2) e-Governance (3) e-Learning?**

Ans:

e-Commerce	e-Governance	e-Learning
www.ircctc.co.in	www.indiancourts.nic.in	www.moodle.org
www.ebay.in	www.rti.gov.in	www.w3schools.com
www.amazon.com	www.india.gov.in	www.exelearning.org

**Q11. What is front end application?**

Ans: A "front-end" application interacts with the user and collects inputs from the user.

**Q12. What is back- end application?**

Ans: A "back-end" application or program is not directly visible to the user but that processes the user requests as received by the front –end. For example databases like MySQL, Oracle, OOo Base, MS-Access etc.

**Q13 List the advantages of E Governance.**

Ans: Advantages are :-

- Improved quality of information and information supply.
- Reduction of process time.
- Cost reduction
- Improved service level
- Increased efficiency.

**Q14. How E-learning is useful to learner.**

- Ans: a. It enables students to complete training conveniently at off-hours or from home.  
b. Self pacing for slow and quick learners reduces stress and increased satisfaction.  
c. Interactivity engage users, pushing them rather than pulling them through training etc

**Q15. Why E-learning is preferred?**

Ans: E-learning is preferred because it provides faster learning at reduced cost, increased accessed to learning and clear accountability for all participants in the learning process.

**Q16.Mr. Kartik is working as a Manager in Flash Telecomm. He wants to create the forms with the following functions. Choose appropriate controls from Text Field, Label, Radio Button, Check Box, List Box, Combo Box, Command Button and write in the third column.**

SNo	Control Used to	Control
1	Enter Name of Customer	
2	Enter Mobile No.	
3	Select Connection Type	
4	Display total Amount of Bill	

Ans: 1. Text Field    2. Text Field    3. Radio Button    4. Label

**Q17. Amarworks for the school. He wishes to create controls on a form for the following functions. Choose appropriate controls from Text Field, Text Area, Label, Option Button, Check Box, List Box, Combo Box, and Button.**

S.No	Control used to	Control
------	-----------------	---------

1	Enter Admission No	
2	Enter Gender	
3	Choose subjects from list of subjects	
4	Clear the form	

Ans: 1. Text Field    2. Radio Button                      3. Combo Box            4.Button

**Q 18.** Anu works for a Hotel Sky wants to create controls on a form for the following function. Choose appropriate controls from TextField, Label, RadioButton, CheckBox, ListBox, ComboBox, Button and write in the third column.

S.No.	Controls use to	Control
1	Select room type	
2	Enter customers name	
3	Select arrival date	
4	To book a room	

Ans: 1.Radio Button    2. Text Field                      3. Text Field            4.Button