

# INFORMATICS PRACTICES

## CLASS - XII

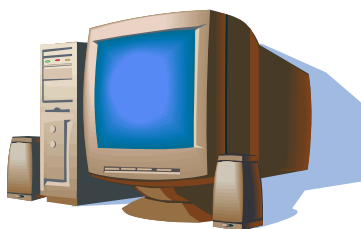


# Student's Handbook

*Easy & systematic approach of Learning*

[For Distribution to Students]

(As per latest CBSE's Curriculum 2012)



[ ♦ Split-up Syllabus ♦ Theory & Practical Assignments, ♦ Guidelines ]

- COMPILED BY-

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## About the Handbook

As you are aware that the CBSE has changed the entire syllabus of Informatics Practices (065), and introduced Java's GUI Programming and MySQL based on Open Source environment.

As per the latest syllabus mentioned in CBSE Curriculum 2012, the students must go through some practical assignments to enhance their practical skill along with class room teaching-learning.

This Student's Handbook is a result of compilation of some theoretical and practical Hands-on exercises to cover the whole syllabus in Learning-by-Doing approach.

This Handbook is an attempt to standardize the Teaching & Learning activities of Informatics Practices (065) subject at XIIth standard in KVs.

I would like to pay my sincere gratitude to the Publisher and Author of the book "Informatics Practices –XII" published by Dhanpat Rai & Co., since most of the questions are taken from this book.

Many-many thanks to all my students of class XII, who helped me by typing the materials and giving corrective feedback.

Your suggestions and feedback are always welcome to improve this Handbook.

**Regards,**

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**SPLIT – UP SYLLABUS****Class XII****Informatics Practices (Theory)**

<b>Month</b>	<b>Chapter No.</b>	<b>Name of Chapter</b>	<b>No of Theory Periods</b>	<b>No of Practical Periods</b>
April -May	1	Computer Networking	10	-
	2	Open Source Concepts	10	4
June	3	Java Revision –I (Programming Fundamentals)	4	4
July	4	Java Revision -II (GUI Swing Controls)	4	4
	5	Java Revision -III (Class & Objects)	4	4
	6	JAVA Classes and Libraries	4	5
August	7	Concept of Inheritance	5	4
	8	GUI Dialogs & Tables	5	5
	9	Database Connectivity	6	8
September	10	Web Application Developments	2	-
	11	HTML-I (Basic Tags)	3	3
	12	HTML-II (Advance Tags)	3	3
	13	Introduction to XML	2	-
	REVISION			-
October	14	MySQL Revision	15	10
	15	Database Transaction	5	6
	16	Advance SQL (Grouping & Table Joins)	15	10
November	17	Tables & Integrity Constraints	7	10
	18	IT Applications	6	20
Dec-Jan	REVISION, Pre Board & Project Work			
<b>TOTAL 110+ Revision</b>			<b>110</b>	<b>100</b>

**DETAILED SPLIT – UP SYLLABUS**  
**Class XII**  
**Informatics Practices (New Syllabus)**

Unit	Topic	Period		Marks	
		Theory	Practical	Theory	Practical
1	Introduction to Computer Systems	20	04	10	02
2	Introduction to Programming	42	40	25	16
3	Relational Database Management System	42	36	30	08
4	IT Application	06	20	05	04
	<b>Total</b>	<b>110</b>	<b>100</b>	<b>70</b>	<b>30</b>

**UNIT 1: Networking & Open Standard****Marks: Theory [10] - Practical [02]****April-May (Before Summer Vacation)****Computer Networking:****Periods: Theory [10] – Practical [00]**

Networking - a brief overview, Basic concept of domain name, MAC, and IP Address, Identifying computers and users over a network (Domain Name, MAC 'Media Access Control' and IP address), domain name resolution, Network Topologies, Types of network - LAN, MAN, WAN, PAN; Wired Technologies - Co-Axial, Ethernet Cable, Optical Fiber; Wireless Technologies - Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link; Network Devices - Hub, Switch, Repeater, Gateway - and their functions Network security - denial of service, intrusion problems, snooping.

**Open Source Concepts:****Periods: Theory [10] – Practical [04]**

Open Source Software (OSS), common FOSS/FLOSS examples (e.g. Gnu/Linux, Firefox, OpenOffice), common open standards (open document format Ogg Vorbis)

**Indian Language Computing:** character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text - phonetic and key map based.

**UNIT 2: JAVA Programming****Marks: Theory [25] - Practical [16]****June****Java Revision of Class XI- I (Programming Fundamentals)****Periods: Theory [04] – Practical [04]**

**Data Types & Variables:** Concept of data types; Built-in data types - byte, short, int, long, float, double, char, String (or any object), Boolean; Declaring Variables, Variable Naming Convention, Assigning value to Variables; Parsing methods, Data type conversion.

**Operators:** Types of Operators, Operators Precedence, using operators to form statements.

**Control Structures:** Decision Structure - if, if-else, switch; Looping Structure- while, do-while, for;

**July****Java Revision of Class XI- II (GUI Swing Controls)      Periods: Theory [04] – Practical [04]**

**Java Swing User Interface components-** Frame, Dialog, OptionPane, Panel, ScrollPane, Label, TextField, PasswordField, TextArea, Button, CheckBox, RadioButton, ComboBox, List, Table, FileChooser, ColorChooser, Toolbar, Menu. Basic component handling methods/attributes. setText, getText, add, isSelected, setSelected, getX, getY, addActionListener.

**Working with Swing controls** (JButtons, JLabel, JTextField, JRadioButton, JCheckBox, JButtonGroup, JComboBox, JList, (With commonly used properties and methods)

**Java Revision of Class XI- III (Introduction to Class & Objects)****Periods: Theory [04] – Practical [04]**

**Introduction to Classes-** Class, objects, types of members in classes, methods in classes, referencing object's member.

Concept of constructor methods, Use of constructors, types of constructors.

**Concept of Methods-** Need, prototypes, passing arguments, designing simple methods.

**Programming Guidelines-** Stylistic Guidelines; Debugging programs- Syntax Errors, Run-Time Errors, Logical Errors; Program Maintenance.

### **Java Classes and Libraries**

#### **Periods: Theory [04] – Practical [05]**

Commonly used libraries: String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring() Math object: pow(), round()

Basic concept of Access specifier (public, private, protected, private protected and default) for classes, Members and methods.

### **August**

#### **Concept of Inheritance:**

#### **Periods: Theory [05] – Practical [04]**

Basic concept of Inheritance: Need, types, use of Access specifiers in inheritance, private Method Overloading and Overriding, Abstract Class and Interfaces, use of interfaces.

#### **GUI Dialogs and Table:**

#### **Periods: Theory [05] – Practical [05]**

Use of Dialogs (Input, Message and confirm dialogs); using jTable and JOptionPane in the application.

#### **Database Connectivity:**

#### **Periods: Theory [06] – Practical [08]**

Accessing MySQL database using ODBC/JDBC to connect with database.

### **September**

#### **Web Application Development:**

#### **Periods: Theory [02]- Practical [00]**

Web application development: URL, Web Server, Communicating with the web server, concept of Client and Server Side.

#### **HTML Basics**

#### **Periods: Theory [03] – Practical [03]**

HTML based web pages covering basic tags - HTML, TITLE, BODY, H1..H6, Paragraph (P), Line Break (BR), Section Separator (HR), FONT and commonly used Tags.

#### **HTML Advanced**

#### **Periods: Theory [03] – Practical [03]**

Html advanced Tag: LIST (UL, OL), TABLE, FORM: use of Form, commonly used Input Tag; Creating and accessing static pages using HTML.

#### **Introduction to XML**

#### **Periods: Theory [02] – Practical [00]**

XML – Introduction; HTML vs XML; Features etc.

### **Revision & Cumulative Test**

### **October**

<b>UNIT 3: Relational Database Management Systems</b>	<b>Marks: Theory [30] - Practical [08]</b>
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#### **Review of RDBMS from Class XI**

#### **Periods: Theory [15] – Practical [10]**

**Introduction to database concepts:** Advantages of DBMS; Data Model; Relation/Table, attribute/fields, Tuple / Rows; Concept of Keys- Primary Key, Candidate key, Alternate key;

**Introduction to MySQL:** Features, data types (ANSI SQL 99 standard commands)

**SQL commands:** DML (SELECT, INSERT, UPDATE, DELETE); DDL( CREATE, DROP, ALTER); Working with SQL SELECT Statement: Selecting All or Specific Column, Using Arithmetic Operators, Defining and using Column Alias, Using Comparison operators - =, <, >, <=, >=, < >, BETWEEN, IN,

LIKE(%), Logical Operators -AND, OR, NOT; Displaying Table Structure; using WHERE clause, Working with Character Strings and Dates, Working with NULL values; ORDER BY Clause, Sorting in Ascending/Descending Order, Sorting By Column Alias Name, Sorting On Multiple Columns;

**MySQL functions:** String Function - CHAR(), CONCAT(), INSTR(), LCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(), UCASE(), UPPER().

Mathematical Functions - POWER(), ROUND(), TRUNCATE().

Date and Time Functions - CURDATE() , DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE().

**Manipulation data:** Inserting New Records, Inserting New Rows with Null Values, Inserting NUMBER, CHAR and DATE Values, Update Statement to Change Existing Data of a Table, Updating Rows in A Table, Delete statement - removing row/rows from a Table;

Creating Table using CREATE TABLE, ALTER TABLE for adding a new column, using naming conventions for column names;

### **Database Transactions**

**Periods: Theory [05] – Practical [06]**

Concept of Database Transaction, Committing and revoking a Transaction using COMMIT and ROLLBACK, working with SAVEPOINTS.

### **Advanced SQL- Grouping & Table Joins**

**Periods: Theory [15] – Practical [10]**

**Grouping Records:** GROUP BY, Group functions - MAX(), MIN(), AVG(), SUM(), COUNT());

using COUNT(\*), DISTINCT clause with COUNT, Group Functions and Null Values,

**Displaying Data From Multiple Tables:** Cartesian product, Union, concept of Foreign Key, Equi-Join

**A u t u m n B r e a k**

## **November**

### **Table and Integrity Constraints**

**Periods: Theory [07] – Practical [10]**

Creating a Table with PRIMARY KEY and NOT NULL constraints, adding a Constraint, enabling Constraints, Viewing Constraints, Viewing the Columns Associated with Constraints;

ALTER TABLE for deleting a column, ALTER TABLE for modifying data types of a column

DROP Table for deleting a table;

## **UNIT 4: IT Applications**

**Marks: Theory [05] - Practical [04]**

### **IT Applications**

**Period: Theory [06]- Practical [20]**

**Review of IT Tools of Class XI:** Definition, Benefits, salient features and societal impacts of e-governance, e – Business, e-Learning.

**Front-end Interface** - Introduction; content and features; identifying and using appropriate component

(Text Box, Radio Button, CheckBox, List) for data entry, validation and display;

**Back-end Database** - Introduction and its purpose; exploring the requirement of tables and its essential attributes;

Front-End and Database Connectivity - Introduction, requirement and benefits

Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Business and e-Learning applications

## **December - Feb**

●Revision ● Pre-Board, ● Project Work ● Practical Examination.

## **March:**

**AISSC Examinations**



## Assignment No. 2

### OPEN SOURCE CONCEPTS

#### **TYPE A: VERY SHORT ANSWER QUESTION**

1. Expand the terms: OSI, FLOSS, FSF, GNU, GPL, W3C, and OSS.
2. Define the following-  
(a) Freeware            (b) Shareware.            (c) FLOSS            (d) LAMP
3. What for are these software used?  
(a) Linux    (b) Mozilla Firefox    (c) PHP    (d) Python    (e) Apache    (f) MySQL.
4. What is openoffice.org?
5. What is a standard? Name two categories of standards.
6. Which of the following are open standards?  
.orgg    .DOC    .SVG    .TTF    .JPEG
7. What is a font? What is OTF?
8. Define: (a) ODF    (b) Ogg Vorbis    (c) TTF    (d) OTF
9. What is Unicode? What is ISCII?
10. What are following ODF file extensions meant for?  
(a) odt    (b) ods    (c) odp    (d) odg    (e) odb.

#### **TYPE B: SHORT ANSWER QUESTION**

1. Compare the followings-  
(a) Free Software & Open source software  
(b) OSS & FLOSS  
(c) Proprietary software & free software  
(d) Freeware & Shareware  
(c) Freeware & Free software.  
(d) TTF & OTF  
(e) Static & dynamic fonts
2. Write short notes on:  
(a) GNU            (b) Linux            (c) Mozilla            (d) Apache  
(e) PostgreSQL    (f) Python            (g) PHP            (h) Tomcat
3. What characteristics make a standard an open standard? Discuss some advantages of Open standard over Proprietary standard.
4. Name & discuss briefly some common open standard formats.
5. How phonetic text entry is different from key map based text entry?

**Assignment No. 3****JAVA GUI PROGRAMMING REVISION TOUR – I [Fundamentals]****TYPE A: VERY SHORT ANSWER QUESTION**

1. What is byte code? How is Java platform independent?
2. What are containers and child controls? Give two examples of each.
3. What is an identifier? What is the identifier forming rule of Java?
4. How are keywords different from identifiers?
5. Which of the following are valid identifiers and why/why not?  
Data\_rec, \_data, 1 data, data 1, my.file, switch, goto, break
6. What are literals? How many types of integer literals are available in Java?
7. How many types of integer constants are allowed in Java? How are they written?
8. What kind of constants are the following: 14, 011, 0X2A, 17, 014, 0XBC1?
9. Write the following real constants into exponent form: 23.197, 7.214, 0.00005, 0.319.
10. What will be the result of  $a = 5/3$  if a is (i) float (ii) int?
11. The expression  $8\%3$  evaluates to \_\_\_\_\_.
12. What will be the value of  $j = -k + 2*k + 1 ++$  if k is 20 initially?
13. What will be the value of  $P=P* ++ J$  where J is 22 and  $P = 3$  initially?
14. Write equivalent Java expressions for the following expressions:

(i).  $ut + \frac{1}{2} ft^2$       (ii)  $|a| + b \geq |b| + a$       (iii)  $\left( \frac{3x + 5y}{5x + 3y} - \frac{8xy}{2yx} \right)^{3/2}$

15. What is meant by implicit and explicit type conversion? Give one example of each.
16. What will be the resultant type of the following expression if bh represents a byte variable, i is an int variable, fl is a float variable and db is a double variable?  
(i)  $bh - 1 + db/fl - i*fl + db/i$       (ii)  $(int) (fl + db)$
17. What is significance of a null statement?
18. What are the three constructs that govern statement flow?
19. What is the significance of a break statement in a switch statement?
20. Write one limitation and one advantage of a switch statement.
21. What is the effect of absence of a break in a switch statement?
22. What is the significance of default clause in a switch statement?
23. What are iteration statements? Name three iteration statements provided by Java.
24. What is meant by an Entry-controlled and Exit controlled loop? Write one example of each.
25. What is meant by an exit-controlled loop? Which Java loops are exit-controlled?
26. Write a for loop that displays the numbers from 10 to 1 i.e., 10, 9, 8, ..., 3, 2, 1.
27. The range of int type is .....
28. The default value of char type variable is .....
29. To get the round off value of x variable, we can use ..... method.
30. What is RAD?

**TYPE B: SHORT ANSWER QUESTION**

1. How are events, message, methods and properties interrelated?
2. Compare the following?  
1.  $?.? : ..$  & if...      2. While loop & do..while loop.
3. What do you mean by Scope of variables? Explain with an example.
4. What are operators? Discuss briefly different types of operators available in Java.

5. Determine the data type of the expression

$$(i) \left( \frac{100(1-pq)}{(q+r)} \right) - \left( \frac{(p+r)/s}{(long)(s+p)} \right)$$

$$(ii) \left( \frac{2x+3y}{5w+6z} \frac{8t}{5u} \right)^4$$

if p, x is an int, r, w is a float, q, y is a long and s, z is double, t is short and u is long double

6. Rewrite the following fragment using switch:

```
if (ch == 'E')
    e++;
if (ch == 'W')
    w++;
if (ch == 'N')
    n++;
if (ch == 'S')
    s++;
else
    unknown++;
```

7. How many times are the following loops executed?

(a) `x = 5 ; y = 50 ;`  
`while(x <= y){`  
`x = y/x ;`  
`.....`  
`}`

(b) `int m = 10, n = 7;`  
`while(m % n >= 0) {`  
`.....`  
`m = m + 1;`  
`n = n + 2;`  
`..... }`

8. Given the following code fragment:

```
i=2;
do{
    System.out.println (" "+i);
    i += 2;
} while (i < 51);
jOptionPane.showMessageDialog( null, "Thank you" );
```

Rewrite the above code using a while loop.

9. Given the following code fragment :

```
i = 100 ;
while (i > 0)
    System.out.print In( i--);
jOptionPane.showMessageDialog( null, "Thank you" );
```

Rewrite the above code using a **do...while** loop.

10. Rewrite following while loop into a for loop

```
int stripes = 0;
while (stripes <= 13) {
    if (stripes %2 == 2)
        System.out.print In("Colour code Red");
    else
        System.out.print In("Colour code Blue");
    stripes = stripes + 1;
}
```

11. Find the output of the following code fragments ?

```
(a) int s = 14;
    if(s<20)
        System.out.print("Under");
    else
        System.out.print("Over");
    System.out.print In("the limit");
```

```
(b) int s = 14;
    if(s<20)
        System.out.print("Under");
    else {
        System.out.print("Over");
        System.out.print In("the limit");
    }
```

```
(c) int s = 94;
    If (s < 20) {
        System.out.print("Under");
    }
    else {
        System.out.print("Over");
    }
    System.out.print In("the limit");
```

12. What will be the output of the following code fragment when the value of ch is

```
(a) 'A'      (b) 'B'      (c) 'D'      (d) 'F'
switch (ch) {
    case 'A' : System.out.print In ("Grade A");
    case 'B' : System.out.print In ("Grade B");
    case 'C' : System.out.print In ("Grade C");
                break;
    case 'D' : System.out.print In ("Grade D");
    default : System.out.print In ("Grade F");
}
```

13. Predict the output of following code fragments:

```
(a) int i, j, n;
    n=0; i=1;
    do {
        n++; i++;
    } while (i<=5);
```

```
(b) int i=1, j=0, n=0;
    while (i<4) {
        for(j=1; j<=i; j++) {
            n+=1;
        }
        i=i+1;
    }
    System.out.print In(n);
```

```
(c) int i=3, n=0;
    while (i<4) {
        n++; i--;
    }
    System.out.print In(n);
```

```
(d) int j=1, s=0;
    while(j<10) {
        System.out.print(j+ "+");
        s=s+j;
        j=j+j%3;
    }
    System.out.print In("="+s);
```

14. Find out errors if any;

```
(a) m=1;
    n=0;
    for(;m+n<19; ++n)
        System.out.print In("Hello \n");
    m=m+10;
```

```
(b) while(ctr !=10) ; {
    ctr=1;
    sum=sum + a;
    ctr=ctr + 1;
}
```

**Assignment No. 4****JAVA GUI PROGRAMMING REVISION TOUR – II[Swing Controls]****TYPE A: VERY SHORT ANSWER QUESTION**

1. What is GUI programming? How Event-Driven methodology facilitates GUI programming.
2. How is swing related to GUI programming?
3. What is an event? What is event handler?
4. What is the default name of action event handler of a button namely TestBtn?
5. What property would you set to assign access key to a button?
6. Write the text using HTML to write the Print text on a PrnBtn?
7. Which method can programmatically performs the click action of a push button?
8. Which property would you set the setting the password character as '\$'?
9. Which method returns the password entered in a password field?
10. Which list property do you set for specifying the items for the list.
11. Which method would you use to determine the index of selected item in a list?
12. Which method would you use to insert an item at specified index, in the list?
13. How you can determine whether 5<sup>th</sup> item in a list is selected or not?
14. Which property you will set to ensure that only one item gets selected in a list.
15. Which method you would use to insert 'Hello' at 10<sup>th</sup> position in the Text Area control.
16. Which method you would like to use to insert an Icon (picture) on a Push Button.
17. Which method would you like to hide a push button jButton1.
18. Which Event Handler method would you like to run with a list to handle its items selections?
19. Which property would you like to set to make a Combo editable?

**TYPE A: VERY SHORT ANSWER QUESTION**

1. What is Layout Manager? Discuss briefly about layout managers offered by NetBeans?
2. Name three commonly used properties and methods of the following controls.  
(a) text field    (b) text area    (c) label    (d) Check Box    (e) button.
3. What is dispose() used for ?
4. What is the difference between-  
(a) Text field & Text area  
(b) List & Combo  
(c) Radio Button & Check Box
5. What is the significance of following properties of a text area ?  
(a) lineWrap                      (b) wrapStyleword
6. What is the significance of a button group ? How do you create a button group ?
7. Discuss about some commonly used properties of lists and a combo boxes.
8. What methods obtains the current selection of a combo box ? Give a code example.
9. Identify the error in following code that is written in action event handler of a button namely OKBtn .  

```
double d = nameTF.getText();
String age = ageTF.getText();
double marks = Double.parseDouble(marksTF.getText());
```
10. Write the steps/commands to do the following-  
(1) To set the iconImage as abc.png file for JFrame.  
(2) To set the cursor type as Hand cursor for a JFrame.  
(3) To set the title as "My First Java application" displayed at title bar of a window.  
(4) To set the tool tip as "Click to get print" when mouse is place on PRINT button.

**Assignment No. 5****JAVA GUI PROGRAMMING REVISION TOUR – III (Methods etc.)****TYPE A: VERY SHORT ANSWER QUESTION**

1. Fill in the blanks
  - (a) In java, methods reside in \_\_\_\_\_.
  - (b) The number and type of arguments of a method are known as \_\_\_\_\_.
  - (c) The first line of method definition that tells about the type of return value along with number and type of arguments is called\_\_\_\_\_.
  - (d) A member method having the same name as that of its class is called\_\_\_\_\_method.
  - (e) A constructor method has\_\_\_\_\_return type.
  - (f) A private constructor allows object creation only inside\_\_\_\_\_methods.
  - (g) A\_\_\_\_\_constructor takes no arguments.
  - (h) A\_\_\_\_\_constructor creates objects through values passed to it.
  - (i) The keyword\_\_\_\_\_refers to current object.
  - (j) The method call in which the data in actual parameters remains intact is called \_\_\_\_\_.
2. What is the role of a return statement in a method ? How many values can be returned?
3. What is composite data type? What is user defined data type?
4. Can every class be referred to as a user-defined data type?
5. What is 'this' keyword? What is its significance?

**TYPE B: SHORT ANSWER QUESTION**

1. Define a method. What is method prototype and signature?
2. Discuss some advantages of using methods in a program.
3. Differentiate between CALL by reference and CALL by value with example.
4. How are parameterized constructors different from non-parameterized constructors?
5. List some of the special properties of the constructor methods.
6. Differentiate between Instance member and static members of a class.
7. What do you mean by actual and formal parameters of a method? Explain with an example.
8. Identify the errors in the method skeletons given below:
  - (1) float average (a, b) { }
  - (2) float mult (int x, y) { }
  - (3) float doer (int, float = 3.14) { }
9. Given the method below write an ActionPerformed event method that includes everything necessary to call this method.
 

```
int thrice (int x)
{ return (a * 3) ; }
```
10. Write a method in Java to do the following (assume method name and parameter yourself)-
  - a. A method takes two integer numbers and returns sum of them.
  - b. A method that takes an integer number and returns 1 if it is even otherwise returns 0.
  - c. A method takes an integer parameter and returns its factorial (e.g. if 5 is passed, it should return 5x4x3x2x1=120).
  - d. A method takes an integer parameter and returns true if number is prime otherwise returns false.
  - e. A method that takes two integer arguments and returns 0 if both the arguments are equal, return -1 if the first argument is smaller than the second and 1 if the second argument is smaller than the first?

## Assignment No. 6

### JAVA CLASSES AND LIBRARIES

#### TYPE A: VERY SHORT ANSWER QUESTION

1. We would like to make a member of a class visible in all subclasses regardless of what package they are in. Which key words would achieve this?
2. What will be the scope of:
 

(a) A public class	(c) A protected class?
(b) A default class?	(d) A private class?
3. What does round ( ) return if a negative float value is passed to it?
4. What are use of pow() and round ( ) method of math library , with an example?
7. Predefined classes are available in the form of \_\_\_\_\_.
8. Name the package you need to import for performing input and output.
9. Which package is by default imported in every Java program?
10. What is the difference between equals() and equalsIgnoreCase() string functions?
11. What is the difference between length() and capacity() string functions?
12. Which command creates a package in java?

#### TYPE B: SHORT ANSWER QUESTION

1. What is friendly access of class member?
2. How are private members different from public members of a class?
3. How are protected members different from public and private members of a class?
4. How does a class enforce information hiding?
5. Write a program to extract a portion of character string and print the extracted string. Assume that m characters are extracted, starting with nth character?
6. Write a program, which will read a text and count all occurrences of a particular character.
7. How do we design a package?
8. Define a class for date with required data members like day, month, year and functions like constructors, printing a date, validating a date etc.
9. Using the above defined class date create two objects such as birthDate and joinDate.
10. Define a class named Book with the following details- (assume data type your self)
  - Data members- Title, Author, Subject, Edition and Price.
  - Method Members-
    - Display() to display the details of the book.
    - Parameterized constructor method to initialize data members with given value.
    - Non-parameterized constructor to initialize String data members with "" and numeric members with 0.

## Assignment No. 7

### CONCEPT OF INHERITANCE

#### TYPE A: VERY SHORT ANSWER QUESTION

- 1) Fill in the blanks in each of the following sentences :
  - a) A method that lacks a body is an ----- method.
  - b) An ----- is like a class except that it contains only instance methods, no instance variables.
  - c) Two ways for a class to inherit something in Java are to ----- a class and ----- an interface.
  - d) Instance variables and instance methods that are declared ----- or ----- are inherited by the Subclasses.
  - e) An object can refer to itself by using the ----- keyword.
  - f) A ----- method is one that does different things depending upon the object that invokes it.
- 2) Inheritance is a way to
  - i) make general classes into more specific classes.
  - ii) pass arguments to objects of classes.
  - iii) add features to existing classes without rewriting them.
  - iv) improve data-hiding and encapsulation.
- 3) What is inheritance? Discuss its various forms.
- 4) Define Base class and Derived class. How are these related?
- 5) True or False?
  - a) Adding a derived class to a base class requires fundamental changes to the base class.
  - b) Derivation of classes facilitates transitivity.
  - c) Use of inheritance saves on efforts and time.
  - d) The way a derived class member function can access the protected and public members of base class, in the same way, the base class can also access protected and public members of derived class.
  - e) The size of a derived class object is equal to the sum of sizes of data members in base class and the derived class.

#### TYPE B: SHORT ANSWER QUESTION

1. Define Inheritance? Why it is an important concept of in object Oriented Languages.
2. How does the visibility mode control the access of members in the derived class? Explain with examples.
3. What is the difference between protected and private members?
4. How are arguments sent to the base constructors in multiple inheritances? Explain with suitable code example?
5. If a base class as well as its derived class contain a member function with the same name, say **func()**, can an object of the derived class access both these functions i.e., of base class and of derived class ?
6. Define an abstract class and abstract methods.
7. What is an interface? What is the use of Interface.
8. What do you mean by Overriding Methods and Hiding Member variables?
9. What do you mean by Method Overloading? What conditions to fulfilled to overload a method?
10. We know that a private member of a base class is not directly accessible by a subclass. Is it anyway possible for the objects of a derived class to access the private members of the base class? If yes, how? Remember, the base class cannot be modified.

## Assignment No. 8

### GUI DIALOGS AND TABLES

#### **TYPE A: VERY SHORT ANSWER QUESTION**

1. What is a dialog?
2. What all classes can you use to create dialogs in Java? Name them.
3. Which component of Swing Windows lets you create a general purpose dialog?
4. Which component of Swing Windows lets you create built in dialog styles?
5. How many dialog types does Java support?
6. Which import command do you need to write before creating an Option Pane dialog window?
7. Which method would you invoke to display  
(i) message dialog      (ii) confirm dialog      (iii) input dialog?
8. Which methods are used to insert and remove rows from an existing table?
9. How do you provide data to a table?
10. What type of value is returned by Confirm Dialog?

#### **TYPE B: SHORT ANSWER QUESTION**

1. What is the difference between a general purpose dialog (JDialog type dialog) and a pre-defined dialog (JOptionPane type dialog) ?
2. Write command to display a message dialog to display prompt as “Hello World”, title as “My dialog” and icon as question icon.
3. By default, what all buttons are shown by :  
(i) Confirm dialog ;                      (ii) Message dialog ;                      (iii) Input dialog
4. Write code fragment to obtain a number from user and display whether it is odd or even. Make use of dialogs only.
5. Write code fragment to obtain a temperature-value in degree Fahrenheit and display it in Celsius. (use dialogs only)
6. Write code to add a row to a table atbl containing details (number, square).
7. Write code to remove first and last row of a table namely atbl.
8. What is a Table Model? What is its role in a Table control?

## Assignment No. 9

### DATABASE CONNECTIVITY TO MYSQL

#### TYPE A: VERY SHORT ANSWER QUESTION

1. Define ODBC and JDBC?
2. What is a connection?
3. What does Class.forName() ?
4. What is result set?
5. What does DriverManager do?
6. Which methods are used to execute SQL queries?
7. Write a statement to register driver com.mysql.jdbc.Driver with DriverManager?
8. Name the methods for the following?
  - (a) to fetch an integer value from the resultset.
  - (b) to fetch a float value from a resultset.
  - (c) To fetch a date value from the resultset
  - (d) To fetch a String value from the resultset.
9. Which package must be import to implement database connection?
10. Name the methods for the following?
  - (e) to move cursor forward by one row in a resultset.
  - (f) to place the cursor to first row in a result set.
  - (g) to add a record in a resultset.
  - (h) to delete a record from a resultset.
  - (i) to place the cursor to next 3<sup>rd</sup> record from current position in the cursor.
  - (j) To get the number of records in the cursor.

#### TYPE B: SHORT ANSWER QUESTION

1. What all task are performed using JDBC ?
2. What is following code doing ?
 

```
Str db = JOptionPane.showInputDialog (null, "Enter name of ur mysql database...") ;
Str db_url = "jdbc:mysql://localhost/" + db ;
Class.forName("com.mysql.jdbc.driver") ;
Connection con = DriverManager.getConnection(db_url,"root", " ");
```
3. What are steps to connect to a database from with java application?
4. What is difference between executeQuery() and executeUpdate() method.?
5. Write code to a mysql database namely school and then fetch all those records from table student where grade is "A".
6. Find errors in the following code :
 

```
Import java.sql* ;
:connection conn =
DriveManager.getconnention("jdbc:mysql://localhost/test","root","wxyz);
Statement stmt = con.createStatement();
Sql= "SELECT empno,emame,job,sal From EMPL; " ;
ResultSet rs = stmt.executeQuery(sql);
}
Catch(Exception e) { }
```

## Assignment No. 10

### WEB APPLICATION DEVELOPMENT

#### TYPE A: VERY SHORT ANSWER QUESTION

1. In the URL, *http://www.mycorp.com/pr/master.htm*, what is the http component?
2. In the URL, *http://www.mycorp.com/pr/master.htm*, what is the www.mycorp.com component?
3. In the URL, *http://www.mycorp.com/pr/master.htm*, what is the /pr/master.htm component?
4. What do you mean by Web Browser, and Web Server?
5. Which protocol is used to upload/ transfer the file from host to server Internet?
6. What is WWW? How does it function?
7. A web browser & web server are an application of client/server computing concept. Comment on these statements?
8. What is URL ? What are its components? Exemplify?
9. What is CGI? How it works in Dynamic web Page service?
10. Differentiate between Static and Dynamic Web Service?

## Assignment No. 11

### Basic HTML Components

#### TYPE A: VERY SHORT ANSWER QUESTION

1. What is HTML? Why it is used?
2. What is Tag ? Differentiate between Container and Empty tag?
3. What is an Attribute?
4. What is the basic Structure of HTML file?
5. What is the difference between-
  - (a) <Font> and <Base Font> tag
  - (b) <BR> and <P>
6. Explain the following tag with their commonly used attributes-

(a) <Html>	(b) <Title>	(c) <Body>	(d) <Font>	(e) <HR>
(f) <P>	(g) <img>	(h) <h1>	(i) <!..>	(j) <A>
7. How color value is formed in Hexadecimal numbers in HTML.
8. Write the HTML code for the followings.
  - (a) to set a background image named "mylogo.jpg" in the page.
  - (b) to set the active link color as Red.
  - (c) to set the Visited link color as green.
  - (d) to align a paragraph as center.
  - (e) to set the alternate font as "Arial" if primary font "Vardana" is not available.

## Assignment No. 12

### ADVANCED HTML (LIST, TABLES & FORMS)

**TYPE A: VERY SHORT ANSWER QUESTION**

- What types of list are supported by HTML?
- Which three tags let you create the definition list?
- Which three tags let you create the (i) un numbered lists? (ii) numbered lists?
- What is a table? Which tag is used to create tables in HTML?
- Which attributes are used to give border to a table?
- Which attribute lets you control the display of select border sides of a table?
- Which attributes is used to control the inside table border?
- How is spacing in cells of table controlled?
- What is the role of ALIGN attribute of <TABLE> tag?
- How can you specify following in table?
  - background image
  - background colour.
  - Table height.
  - Table width.
- What tag is used to specify
  - Table data
  - Table header
  - Table row?
- Name the attributes used for following?
  - Setting the cell width.
  - Changing the cell span.
  - Setting cells background colour.
  - Aligning cell contents vertically.
- What for are <TH> and <TR> tags used?
- What are forms? Which methods and actions are commonly used with Forms?
- Name different control types supported by HTML forms.
- Write the tags to define the following :
  - A text box
  - A text area
  - A radio button
  - A check box
  - A Password box
  - A Pop up box
  - Submit button
  - A label.

**TYPE A: VERY SHORT ANSWER QUESTION**

- How will you nest an un order list inside an ordered list?
- How would you indent a single word and put a square bullet in front of it?
- Write code to produce following HTML tables?

(i)

A	B
	C

(ii)

A	B	C
D	E	F

(iii)

A	B	
C	D	E
G	H	
		F

- Write HTML code to produce following controls
 

grade:  A  B  C

Subjects:  English  Maths  Computers  Accounts
- Write HTML code to produce these controls
  - a text box
  - a text area with 10 rows and 30 columns
  - A password text box
  - A pop up box to choose class from it.

## Assignment No. 13

### INTRODUCTION TO XML

#### TYPE A: VERY SHORT ANSWER QUESTION

1. Expand the following:  
(a) XML      (b) EDI      (c) CSS      (d) DTD.
2. What is XML? What do you mean by Extensible in XML?.
3. Differentiate between XML and HTML.
4. Name some markup language based on XML.
5. What is prolog? What is data instance?
6. Write some features of XML.
7. What is valid document?
8. Name a meta-language?
9. Think of situation where HTML should be preferred over XML?
10. What is the role of Style sheet in XML file system?

## Assignment No. 14

### MySQL Revision Tour

#### TYPE A : VERY SHORT ANSWER QUESTIONS

1. Define the following terms:

- |             |             |                     |                     |                 |
|-------------|-------------|---------------------|---------------------|-----------------|
| (I) DBMS    | (ii) View   | (iii) data security | (iv) data integrity | (v) Relation    |
| (vi) domain | (vii) tuple | (viii) attribute    | (ix) Degree         | (x) cardinality |

1. What is data redundancy? What are the problems associated with it?
2. What is data model? Name various data model?
3. How do database management systems ensure data security and privacy?
4. What do you mean by referential Integrity? How it is enforced in DBMS?
5. What is Key? Define the following keys-
 

(I) Primary key	(ii) Candidate key	(iii) Alternate key	(IV) Foreign key.
-----------------	--------------------	---------------------	-------------------
6. What types of commands are used in the following categories?
 

1. DDL	2. DML
3. TCL	4. System control commands
7. What do you mean by Data dictionary? What it consist of?
8. What is data type? Name some data types available in MySQL.
9. Compare Char and Varchar data types?
10. Which keyword eliminates the redundant data from a query result?
11. How would you display system date as the result of a query?
12. Which function is used to substitute Null values in a query result?
13. Which operator concatenates two strings in a query result?
14. What command is used for-
 

1. To change/open a database	2. To view the table structure.
------------------------------	---------------------------------
15. Which comparison operator is used for comparing?
 

(i) Patterns	(ii) character value	(iii) null values	(iv) ranges	(v) list of values
--------------	----------------------	-------------------	-------------	--------------------
16. Define a function. Why they are useful?
17. Write commands to display the system date.
18. Write a command to display the name of current month.
19. Write command to print the day of the week of your birthday in the year 1999.
20. What is the difference between SYSDATE() and NOW() function?
21. Consider two fields B\_date, which stores the birth date and J\_date, which stores the joining date of an employee. Write commands to find out and display the approximate age of an employee as on joining date.
22. Which is a constraint? Name some constraint that you can apply to enhance database integrity.
23. What is Primary key? What is PRIMARY KEY constraint?
24. What is the role of UNIQUE constraint? How is PRIMARY KEY constraint different from UNIQUE constraint?
25. What is NOT NULL constraint? What are DEFAULT constraints?
26. When column's value is skipped in an INSERT command, which value is inserted in the database?
27. How would you view the structure of table Dept?
28. .... command removes the table along with its structure and indexes.
29. .... command removes all the row but not table structure.
30. Identify the error in "DELETE ALL FROM TABLE EMPL" command ?

**TYPE B : SHORT ANSWER QUESTIONS**

1. What is Database Management System? Discuss its advantages.
2. What is Data Abstraction? Draw a diagram explaining various levels of data abstraction.
3. What is meant by "Data independence"? Explain difference between Logical and Physical data independence.
4. What is MySQL? Describe its features?
5. Differentiate between DDL and DML commands?
6. How constraints ensure the validity of data? Explain various types of constraints with example.
7. What is FOREIGN key? How do you define foreign key in your table?
8. How is FOREIGN KEY different from PRIMARY KEY command?
9. What is default value? How do you define it? What is default value for a column for which no value is defined?
10. Differentiate between:
  - (i) DROP TABLE & DROP DATABASE
  - (ii) DROP TABLE & DROP clause of ALTER TABLE.
11. Explain the following functions with syntax, purpose and example.
 

1) CONCAT()	2) SUBSTR()	3) TRIM()	4) INSTR()
5) MID()	6) MOD()	7) POW()	8) ROUND()
9) CURDATE()	10) NOW()	11) SYSDATE()	12) DAYNAME()

**Table: Empl**

empno	ename	job	mgr	hiredate	sal	comm
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL
8499	ANYA	SALESMAN	8698	1991-02-20	1600.00	300.00
8521	SETH	SALESMAN	8698	1991-02-22	1250.00	500.00
8566	MAHADEVAN	MANAGER	8839	1991-04-02	2985.00	NULL
8654	MOMIN	SALESMAN	8698	1991-09-28	1250.00	1400.00
8698	BINA	MANAGER	8839	1991-05-01	2850.00	NULL
8882	SHIVANSH	MANAGER	8839	1991-06-09	2450.00	NULL
8888	SCOTT	ANALYST	8566	1992-12-09	3000.00	NULL
8839	AMIR	PRESIDENT	NULL	1991-11-18	5000.00	NULL
8844	KULDEEP	SALESMAN	8698	1991-09-08	1500.00	0.00

12. Consider the Empl table and write SQL command to get the following.
  - a. Write a query to display EName and Sal of employees whose salary are greater than or equal to 2200?
  - b. Write a query to display details of employees who are not getting commission?
  - c. Write a query to display employee name and salary of those employees who don't have their salary in range of 2500 to 4000?
  - d. Write a query to display the name, job title and salary of employees who don't have manager?
  - e. Write a query to display the name of employee whose name contains "A" as third alphabet?
  - f. Write a query to display the name of employee whose name contains "T" as last alphabet?
  - g. Write a query to display the name of employee whose name contains "M" as First and "L" as third alphabet?
  - h. Write a query to display details of employees with the text "Not given", if commission is null?

13. Write SQL command for the following in the basis of given table (Club)?

COACH_ID	COACH	AGE	SPORTS	Dsteofapp	PAY	SEX
1	KUKREJ	35	KARATE	27/3/1996	1000	M
2	RAVINA	34	KARATE	20/01/1998	1200	F
3	KARAN	34	SQUASH	19/02/1998	2000	M
4	TARUN	33	SWIMMIN	01/01/1998	1500	M
5	ZUBIN	36	SWIMMIN	12/01/1998	750	M

- To show all information about the swimming coaches in the club.
- To list names of all coaches with their date of appointment in descending order.
- To display report, showing coachmen pay, age and bonus (15% of pay).

14. Write SQL command for the following in the basis of given table (Student)?

No	Name	Stipend	Stream	Avg	Grad	Clas
1	Karan	400	Science	78.5	B	12B
2	Diwakar	450	Commerce	89.2	A	11C
...	.....	.....	.....	.....	...	....

- Select all the Non medical stream students from this table.
- List names of those students who are in class 12 stored in stipend.
- List all student stored by avg marks in descending order.
- Display a report, listing name, stipend, stream, and amount of stipend received in a year assuming that stipend is paid every month.

15. Write SQL commands for the following on the basis of given table.

Table: LIBRARY

No.	Title	Author	Type	Pub	Qty	Price
1	Data Structure	Lipschu	DS	McGraw	4	217
2	Computer studies	French	FND	Galgotia	2	75
3	Advanced Pascal	Schildt	PRO	McGraw	4	350
4	Dbase dummies	Palmer	DBM	PustakM	5	130
5	Mastering C++	Gurewi	PRO	BPB	3	295

- Select all the PROG type published by BPB from Library.
- Display a list of all books with Price more than 130 and stored by Qty.
- Display all the books stored by Price in ascending order.

16. Write SQL commands for the following on the basis of given table relation Teacher.

No.	NAME	Age	Department	Dateofjoin	Salary	Sex
1	Jugal	33	Computer	10/01/97	12000	M
2	Sharmila	31	History	23/03/98	20000	F
3	Sandeep	32	Maths	12/12/96	30000	M
4	Sanggeta	35	History	01/07/99	40000	F
5	Rakesh	42	Maths	05/09/97	25000	M
6	Shaym	50	History	27/06/98	30000	M
7	Shiv Om	44	Computer	25/02/97	21000	M
8	Shalakha	33	Math	31/07/97	20000	F

- To show all information about the teacher of history department.
- To list the names of female teachers who are in Hindi department.
- To list names of all teachers with their date of joining in ascending order.

17. Given the following table:

**TABLE: CLUB**

COACH_ID	COACHNAME	AGE	SPORTS	DATOFAPP	PAY	SEX
1	KUKREJA	35	KARATE	1996-03-27	1000	M
2	RAVINA	34	KARATE	1998-01-20	1200	F
3	KARAN	34	SQUASH	1998-02-19	2000	M
4	TARUN	33	BASKETBALL	1998-01-01	1500	M
5	ZUBIN	36	SWIMMING	1998-01-12	750	M
6	KETAKI	36	SWIMMING	1998-02-24	800	F
7	ANKITA	36	SQUASH	1998-02-20	2200	F
8	ZAREEN	37	KARATE	1998-02-22	1100	F

Give the output of following SQL statements:

- (i) SELECT LCASE (SPORTS) FROM Club;
- (ii) SELECT MOD (Age, 5) FROM CLUB WHERE Sex = 'F';
- (iii) SELECT POWER (3, 2) FROM CLUB WHERE Sports='KARATE';
- (iv) SELECT SubStr (CoachName, 1, 2) FROM CLUB WHERE Datofapp>'1998-01-31';

18. Consider the following table and answer the following-

**Table: Empl**

empno	ename	job	mgr	hiredate	sal	comm
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL
8499	Anya	SALESMAN	8839	1991-02-20	1600.00	300.00
....	.....	.....	.....	.....	.....	.....

- a) Update all Ename so that it contains the entire name in capital letters.
- b) Increase the salary of employee by 10% in Empl table.
- c) Give commission of Rs 500 to all employees who joined in year 1982 in Empl table
- d) Modify table Empl, add another column called Grade of VARCHAR type size 1 into it.
- e) In the added column Grade, assign grade as follows.
  - if sal is in range 0-2000 then Grade is 1
  - If sal is in range 2001-3000 then Grade is 2
  - If sal is in range 3001 or higher then Grade is 3
- f) Display the details of employees who are working under the employee named AMIR.
- g) Modify the definition of column Grade. Increase its size to 2.
- h) Drop the table Empl.

19. Create the table Employee based on the following table instance Chart.

Column name	ID	FirstName	LastName	DeptID
<b>Data Type</b>	NUMBER	VARCHAR	VARCHAR	NUMBER
<b>Length</b>	8	25	25	8

20. Write the command for the following-

- a) Create table CUSTOMER as per following Table structure.

Column Name	CustID	CustName	CustAdd1	CustAdd2	CustPhone
<b>Data Type</b>	NUMBER	VARCHAR	VARCHAR	VARCHAR	VARCHAR
<b>Length</b>	7	30	20	30	10

- b) Add one column Email of data type VARCHAR and size 30 to table Customer.
- c) Add one more column CustIncomeGroup of data type VARCHAR(10).
- d) Insert few records with relevant information in the Customer table.
- e) Drop the column CustomerIncomeGroup from table Customer.

## Assignment No. 15

### DATABASE TRANSACTIONS

#### **TYPE A: VERY SHORT ANSWER QUESTION**

1. What is a Transaction?
2. Define the following-
  - a) Atomicity
  - b) Consistency
  - c) Isolation
  - d) Durability
3. What are two way in which multiple transactions can be executed?
4. What is Savepoint? What is the role of Savepoint in the Transaction?
5. Describe the following command –
  - a) COMMIT
  - b) ROLLBACK
  - c) SAVEPOINT

#### **TYPE B: SHORT ANSWER QUESTION**

1. Describe briefly the ACID Properties of the Transaction?
2. What are the advantages and limitation of serial execution of transaction?
3. Why do we use Savepoint? Explain with an example.
4. What do you understand by All-or-none concept in context of transaction handling?

**Assignment No. 16****SQL- GROUPING AND JOINING TABLES****TYPE A: VERY SHORT ANSWER QUESTION**

1. What are Single Row and Multiple row functions?
2. What is significance of GROUP BY clause in a SQL query?
3. What is difference between Where and Having clause in SQL select command?
4. Write a query to find out Sum, Average, lowest and highest Marks in Student table?
5. Write a query to find out Sum, Average, lowest and highest Marks of the students in STUDENT table grouped by STREAM?
6. Write a query to find out number of student in each Stream in STUDENT table?
7. What is a Join? How many types of join can you create in MySQL?
8. Can you join two tables without using Join keyword?
9. What is difference between ON and USING join-clause?
10. How is natural join different from an Equi-join?

**TYPE B: SHORT ANSWER QUESTION**

1. Consider the following EMP and DEPT table -

**Table: Emp**

EmpNo	EmpName	City	Designation	DOJ	Sal	Comm	DeptID
8369	SMITH	Mumbai	CLERK	1990-12-18	800.00	NULL	20
8499	ANYA	Varanasi	SALESMAN	1991-02-20	1600.00	300.00	30
8521	SETH	Jaipur	SALESMAN	1991-02-22	1250.00	500.00	30
8566	MAHADEVAN	Delhi	MANAGER	1991-04-02	2985.00	NULL	20
...	.....	.....	.....	.....	.....	.....	...

**Table: DEPT**

DeptID	DeptName	MgrID	Location
10	SALES	8566	Mumbai
20	PERSONEL	9698	Delhi
30	ACCOUNTS	4578	Delhi
40	RESEARCH	8839	Banglore

Write the SQL command to get the following.

- a. Show the minimum, maximum and average salary of Managers.
- b. Count the number of Clerk in the Organization.
- c. Display the Designation wise list of employees with name, Sal and Date of Joining.
- d. Count the number of employees who are not getting commission.
- e. Show the average salary for all departments with more than 5 working people.
- f. List the count of Employees grouped by DeptID.
- g. Display the maximum salary of employees in each Department.
- h. Display the name of Employees along with their Designation and Department Name.
- i. Count the number of Employees working in ACCOUNTS department.
- j. Display the name of employees working in Delhi.
- k. Display the name of employees working in the same city from where they belongs.

- l.** Display the name of Employees who is managing SALES department.
- m.** Display the name of employees who are working in Delhi and getting more than 5000.
- n.** Display the details of employees who are working in RESEARCH Department.
- o.** Find out the name of all Salesman who are not working in Mumbai.

2. Consider the following structure of TEACHER and STUDENT table -

**Table: TEACHER**

TeacherID	TName	City	Subject	Qualification	Designation	Pay
-----------	-------	------	---------	---------------	-------------	-----

**Table: STUDENT**

StdID	Name	FName	Stream	TeacherID
-------	------	-------	--------	-----------

Write the SQL command to get the following.

- a.** Show the name of students enrolled in Science stream.
- b.** Count the number of students in Commerce Stream.
- c.** Count the number of teachers in each designation.
- d.** Display the maximum pay of teacher who is teaching English.
- e.** Display the name of students who are taught by "Anand Mathur".
- f.** Display the name and designation of teachers who are teaching to a student named "Amit".
- g.** Find out the name of teacher who is getting highest pay.
- h.** Find out the city of teachers who are teaching Math subject.
- i.** Find out the name of teacher who is getting lowest salary in PGTs.
- j.** Display the list of students who are taught by PGTs only.

## Assignment No. 17

### TABLES & INTEGRITY CONSTRAINTS

#### TYPE A: VERY SHORT ANSWER QUESTION

1. What are constraints? Name the different constraints that can apply on a table?
2. Can you have multiple Primary key in a table?
3. Can you have multiple foreign keys in a table?
4. What do mean by Column level and Table level constraints?
5. Which command is used to delete the constraints from the table?
6. Which command is used to see the structure of a table along with Constraints?
7. Which constraint is used to implement user defined policies or conditions?
8. How is Unique constraints different from Primary Key constraints?
9. What is the role of NOT NULL constraints?
10. How you can disable Foreign Key constraints in a table?

#### TYPE B: SHORT ANSWER QUESTION

1. What are Referential Integrity? Which constraint is used to implement this integrity rule?
2. How you define a Foreign Key constraint? Explain with an example.
3. How you can add a constraint? Explain with an example.
4. What do the following actions do with foreign key constraint:
  - a. ON DELETE CASCADE
  - b. ON UPDATE RESTRICT
  - c. ON DELETE SET NULL
5. Write the command for the following-
  - a. Create table CUSTOMER as per following Table structure.

Column Name	CustID	CustName	CustAdd1	CustAdd2	CustPhone
Data Type	NUMBER	VARCHAR	VARCHAR	VARCHAR	VARCHAR
Length	7	30	20	30	10

- b. Add one column Email of data type VARCHAR and size 30 to table Customer.
  - c. Add one more column CustIncomeGroup of data type VARCHAR(10).
  - d. Insert few records with relevant information in the Customer table.
  - e. Drop the column CustomerIncomeGroup from table Customer.
6. Write the commands for the followings:
  - a. Create table CUSTOMER as per following Table structure

Col. name	EmpID	EmpName	EmpAdd	EmpPhone	EmpSal	DeptID
Key type	Primary					Foreign
Nulls /Unique		NOT NULL				
Fk Table						Department
Fk Column						Dept_ID
Datatype	NUMBER	VARCHAR	VARCHAR	VARCHAR	NUMBER	VARCHAR
Length	6	20	30	10	9,2	2

- b. Delete the Primary key constraints from the CUSTOMER table.
  - c. Change the datatype of EmpSal to Number(10,2) from Number (9,2).

## Assignment No. 18

### IT APPLICATIONS

#### **TYPE A: VERY SHORT ANSWER QUESTION**

1. Define the following-
  - b) E-Governance
  - b) E-Business
  - c) E-Learning
2. List any five web portal with their purposes involved in E-Governance.
3. List any five web portal with their purposes involved in E-Commerce or Business.
4. List any five web portal with their purposes involved in E-Learning
5. Define the followings-
  1. Entity
  2. Attribute
  3. Relation
  4. Relationship

#### **TYPE B: SHORT ANSWER QUESTION**

1. How has society benefitted from e-governance? What are the limitations of e-governance?
2. How has society benefitted for e-business? Discuss its limitations?
3. How has society benefitted for e-learning? Discuss its societal impacts?
4. Discuss some popular e-business types incorporated through e-business systems.
5. What is meant by E-governance Model? How E-Government interacts Citizen, Business and Government.
6. What do mean by Front-end and Back-end?
7. What is GUI Interface? Discuss some guidelines be followed during design of Interface.
8. What do you mean by DDLC? What are the major steps followed during design of a Database?
9. What is ER-Diagram? How it helps you to model the database?
10. What types of relationship are found among entities? Discuss with examples.

**PRACTICAL – SCHEDULE****Class XII- Informatics Practices****[Month-Chapter-Experiment Plan]**

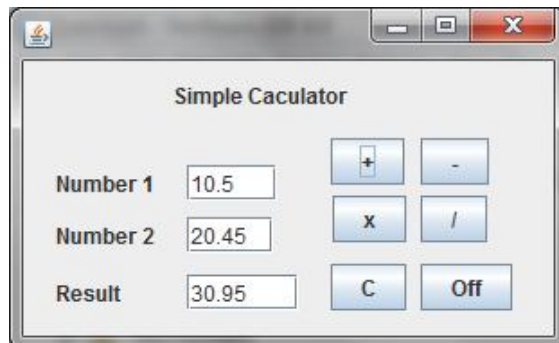
<b>Month</b>	<b>Chapter No.</b>	<b>Name of Chapter</b>	<b>Experiment No.1</b>
April	1	Computer Networking	-
	2	Open Source Concepts	-
June	3	Java Revision –I (Programming Fundamentals)	1-7
July	4	Java Revision -II (GUI Swing Controls)	8-14
	5	Java Revision -III (Class & Objects)	15-17
	6	JAVA Classes and Libraries	18-20
August	7	Concept of Inheritance	-
	8	GUI Dialogs & Tables	
	9	Database Connectivity	21-24
September	10	Web Application Developments	-
	11	HTML-I (Basic Tags)	25
	12	HTML-II (Advance Tags)	26
	13	Introduction to XML	-
	REVISION		
October	14	MySQL Revision	27
	15	Database Transaction	-
	16	Advance SQL (Grouping & Table Joins)	28
November	17	Tables & Integrity Constraints	29
	18	IT Applications	30
Dec-Jan	REVISION, Pre Board & Project Work		<b>Total (30)</b>

## PRACTICAL – ASSIGNMENTS

### Experiment No. 1:

**Objective:** Understanding and use of variables of float and other data types.

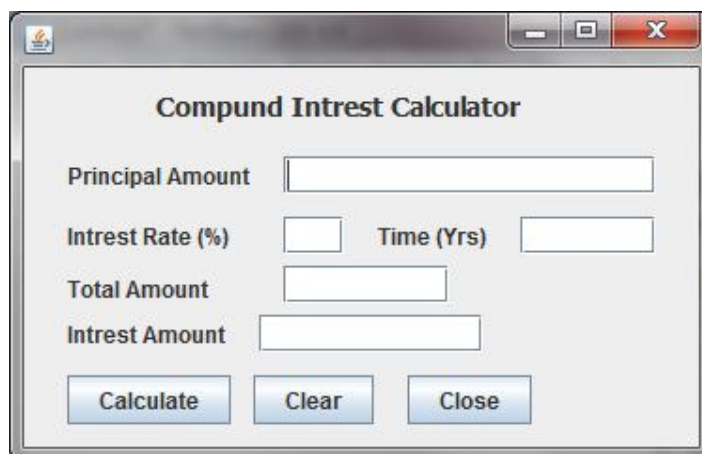
**Task:** Develop a simple Calculator application as per given screen snapshot, to implement +, -, x and / operations. The text boxes get cleared when 'C' button is clicked.



### Experiment No. 2:

**Objective:** Understanding the real life application requirement and developing a solution.

**Task:** Develop a Compound Interest Calculator application as per given screen snapshot, to calculate total amount for given Amount, Rate of Interest and Time using  $(A=P(1+R/100)^T)$  and Interest  $I=A-P$ .



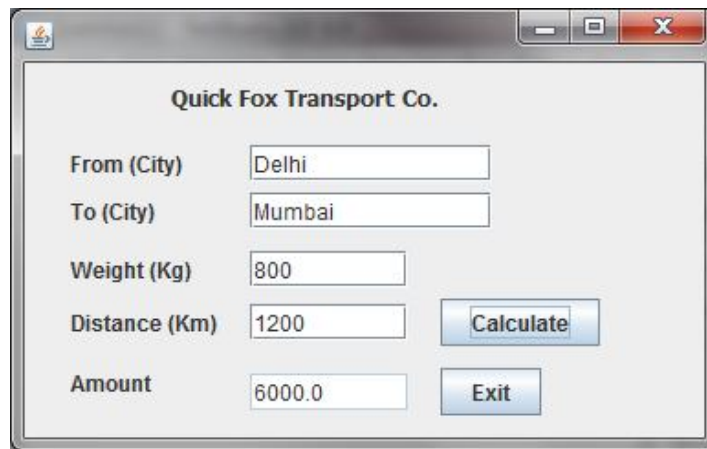
### Experiment No. 3:

**Objective:** Understanding and use of Nested conditions in the Real life applications.

**Task:** A Quick Fox Transport Co. wants to develop an application for calculating amount based on distance and weight of goods.

The charges (Amount) to be calculated as per rates given below.

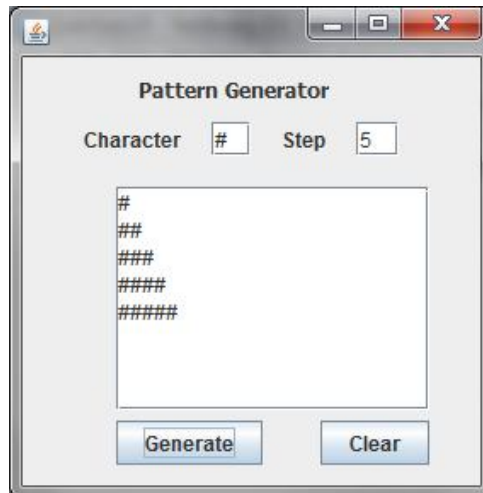
Distance	Weight	Charges per Km.
≥ 500 Km	≥ 100 kg.	Rs. 5/-
	≥ 10 and < 100 kg.	Rs. 6/-
	< 10 kg.	Rs. 7/-
< 500 Km	≥ 100 Kg.	Rs. 8/-
	< 100 Kg.	Rs. 5/-



**Experiment No. 4:**

**Objective:** Understanding and use of Nested loops and Text Area control.

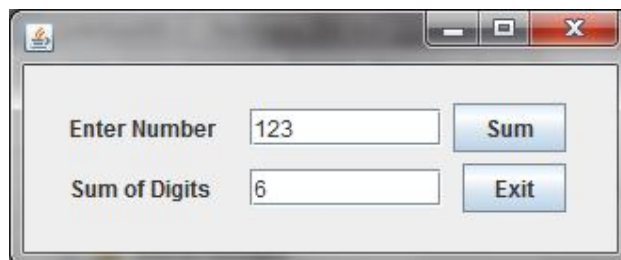
**Task:** Develop a Java application to print a Pattern for given character and steps, as per given screen shot.



**Experiment No. 5:**

**Objective:** Understanding the use of loops and mathematical operations.

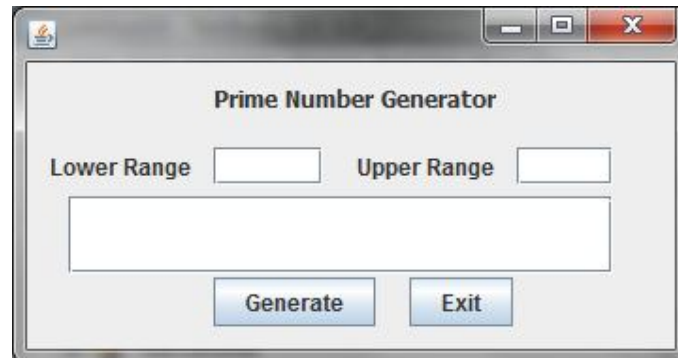
**Task:** Develop an application to compute the sum of digits for given number.



**Experiment No. 6:**

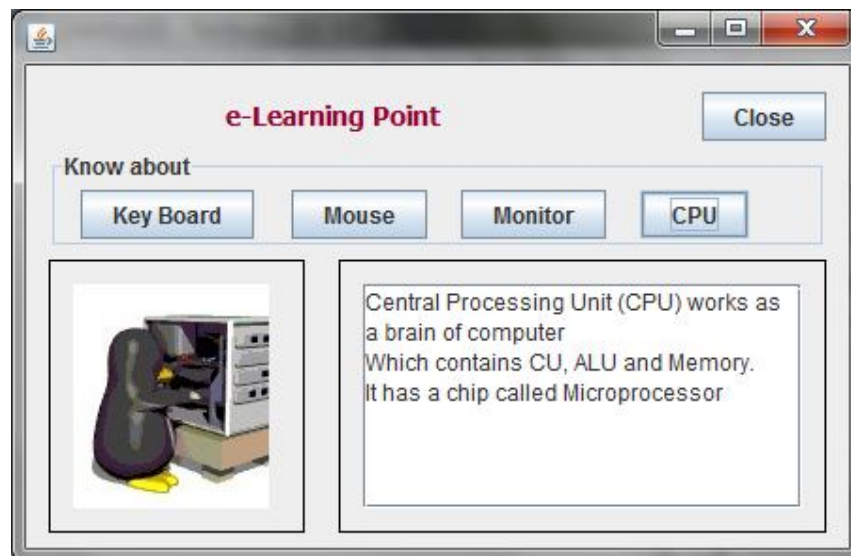
**Objective:** Understanding and developing a logic to solve a problem. Use of nested loops and breaking it prematurely.

**Task:** Develop a Prime Number Generator Application which generates Prime numbers for given range. Prime numbers are those numbers which are divisible by one or itself only.

**Experiment No. 8:**

**Objective:** Displaying images on a Label and Text Area control.

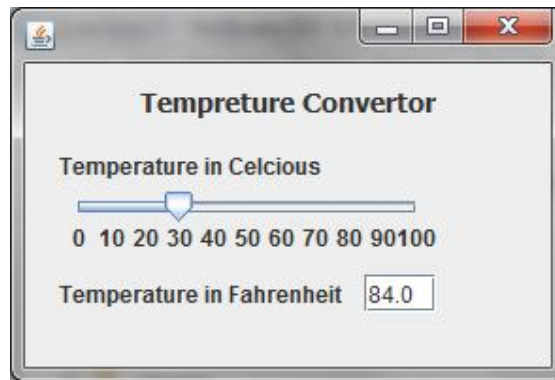
**Task:** Develop an e-Learning application with images and text information as per given screen shot.



**Experiment No. 7:**

**Objective:** Use of Slider or Scroll bar control to get user input and using it some calculation.

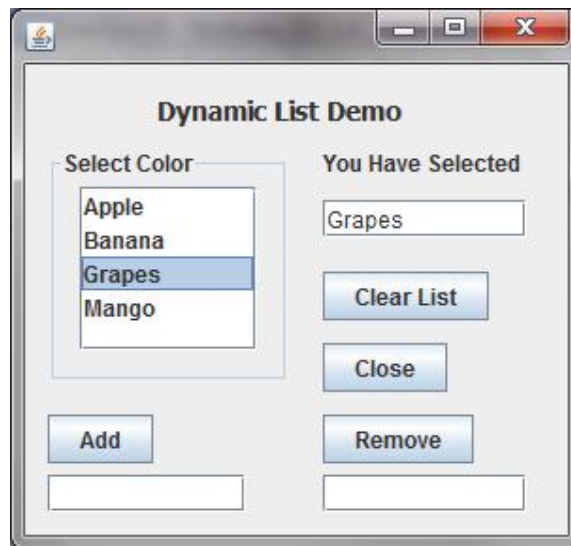
**Task:** Develop a Temperature Converter application which converts selected Celsius temperature on a scale and displays it equivalent Fahrenheit temperature.



**Experiment No. 9:**

**Objective:** Demonstration of use of List Dynamically through code.

**Task:** Develop an application as per given screen shot to Add , Remove the given members of list and display the selected item in a text field using List control.



**Experiment No. 10:**

**Objective:** Understanding and using the Radio Button in Real-life application to determine the selection of choice and calculations accordingly.

**Task:** Develop a Billing application for Happy Shopping- A retail chain involved in sales of Readymade garments. The happy Shopping offers discount to its members holding Platinum, Gold and Silver card. The 10% discount is given to Platinum card, 8% to Gold Card and 5% to Silver Card holders on sales amount.

The screenshot shows a software window titled "Happy Shopping". It contains several input fields and a calculation section. The "Item Name" field contains "Shirt". The "Rate (per unit)" field contains "550". The "Quantity" field contains "5". The "Total Amount" field contains "2750.0". The "Discount" field contains "275.0". The "Net Amount" field contains "2475.0". On the right side, there is a "Membership Card" section with three radio buttons: "Platinum" (which is selected), "Gold", and "Silver". Below the membership card section are two buttons: "Calculate" and "Close".

**Experiment No. 11:**

**Objective:** Understanding and using the Radio Button in Real-life application to determine the selection of choices and calculations accordingly.

**Task:** The Entertainment Paradise- A theater in Delhi wants to develop a computerized Booking System. The proposed Interface is given below. The theater offers different types of seats. The Ticket rates are- Stalls- Rs. 625/-, Circle- Rs.750/-, Upper Class- Rs.850/- and Box- Rs.1000/-. A discount is given 10% of total amount if tickets are purchased on Cash. In case of credit card holders 5% discount is given.

The screenshot shows a software window titled "Theator Booking System". It contains several input fields and a calculation section. The "Seat Type" section has four radio buttons: "Stalls", "Circle" (which is selected), "Upper Class", and "Box". The "Payment Mode" section has two radio buttons: "Cash" (which is selected) and "Credit Card". The "Total Seats" field contains "5". The "Total Amount" field contains "3750.0". The "Discount" field contains "375.0". The "Net Amount" field contains "3375.0". Below the net amount field are two buttons: "Calculate" and "Close".

**Experiment No. 12:**

**Objective:** Understanding the use of various controls in Real life application.

**Task:** ABC Consultancy is a placement organization, assists job seekers. The Entry form has to be designed to facilitate the Registration Process with following features.

1. When Submit button is pressed, the following things should happen.
  - (a) If Post Graduate is checked, the 10+2 and Graduate checkboxes should also get selected automatically.
  - (b) If Graduate is checked, the 10+2 checkboxes should also get selected.
  - (c) A Message Box with "Hello Mr. .... you are registered" or "Hello Miss... .. you are registered" as per Gender of candidate.
2. When Clear Button is pressed, all the text boxes, check boxes gets cleared, and Male and Science option is selected by default.

The screenshot shows a window titled "ABC Consultancy". It contains the following controls:

- Name:** A text input field.
- Gender:** Radio buttons for "Male" and "Female".
- Qualification:** Checkboxes for "10+2", "Graduate", and "Post Graduate".
- Stream:** Radio buttons for "Science", "Commerce", and "Arts".
- Buttons:** "Submit" and "Clear" buttons.

**Experiment No. 13:**

**Objective:** Understanding the need of Real life applications.

**Task:** The Milton Casting Company has developed an application to calculate the wage of its workers. The following functionalities are expected.

1. The Wage rate are Rs.150/- (per day) for male and Rs.130/- for females.
2. An additional amount Rs.50/- per day is paid if worker is skilled.
3. When Calculate Button is clicked the Total wage amount is calculated and displayed in relevant Text box.
4. When Clear Button is clicked, all the text boxes get cleared and Male option is selected.

The screenshot shows a window titled "Wage Calculator". It contains the following controls:

- Name:** A text input field.
- Gender:** Radio buttons for "Male" and "Female".
- Skilled:** A checkbox.
- No. of Days Worked:** A text input field.
- Total wage amount:** A text input field.
- Buttons:** "Calculate" and "Clear" buttons.

**Experiment No. 14:**

**Objective:** Understanding the need of Real life applications.

**Task:** The Fashion Gallery- a leading garments shop wants to develop an application to calculate the discount Amount. The following functionalities are expected.

1. The discount is given on the basis on payment mode.  
Cash – 10%, Cheque – 8% and Credit – 5% of bill amount.  
If Bill amount is more than 10000 then additional 5% discount is also given.
2. Initially, Calculate Net Amount is disabled, but when user click on Calculate Discount button the discount amount is calculated and displayed, and Calculate Net Amount Button is enabled.
3. When Calculate Net Amount is clicked the Net Amount is calculated and displayed in Net Amount Text Box.
4. When Exit Button is clicked, a Confirm dialog appears and application is closed only when Yes option in confirm dialog is selected.

**Experiment No. 15:**

**Objective:** Developing Multi-Frame Application using JDialog Control.

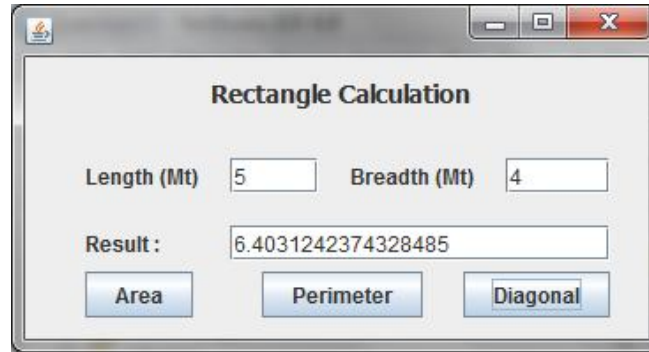
**Task:** Develop an e-Mail sending Application which facilitates the login and composing screen as given below. A Message box also displayed with proper message when invalid password is given by user and when mail is sent after pressing Send button.

**Experiment No. 16:**

**Objective:** Understanding and use of Java's math methods and user defined methods.

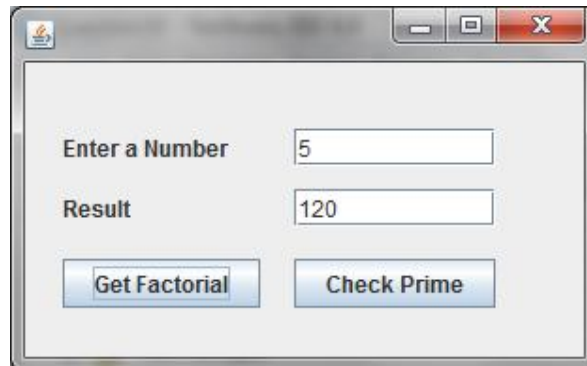
**Task:** Develop an application which calculates Area, Perimeter and Diagonal for given length and breadth using custom methods. The functions Area(), Perimeter() and Diagonal() method is called with parameters when user clicks on the appropriate buttons.

If X and Y are the sides then you may calculate the Area= $X*Y$  , Perimeter= $2(X+Y)$  and Diagonal= $\sqrt{X^2+Y^2}$ .

**Experiment No. 17:**

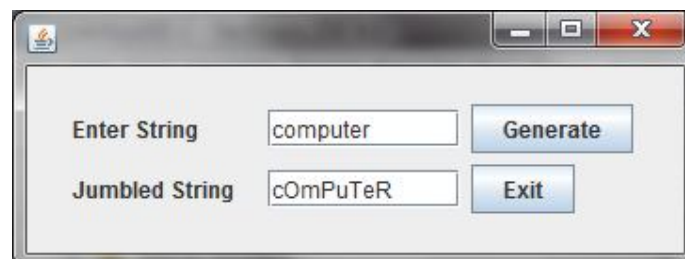
**Objective:** Understanding the use of User-defined methods in the application.

**Task:** Develop an application to compute the Factorial and Checking Prime for a given number, using custom methods. A method named factorial() and CheckPrime() along with suitable parameters are called when Get Factorial and Check Prime button is pressed respectively.

**Experiment No. 18:**

**Objective:** Understanding the use of String library methods.

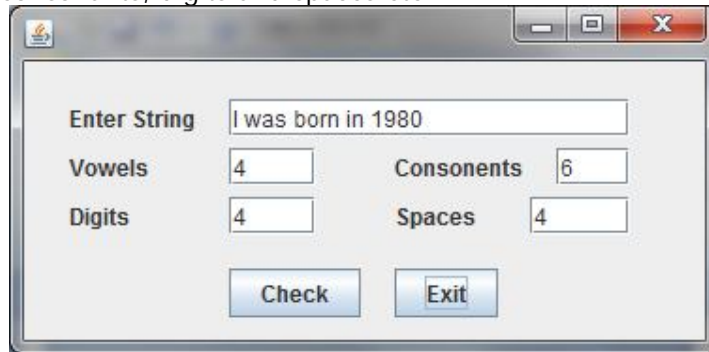
**Task:** Develop an application to generate the jumbled string for given string. The jumbled string is obtained by converting each alternate character in uppercase.



**Experiment No. 19:**

**Objective:** Understanding the use of String library methods.

**Task:** Develop an application to Analyze the given string by counting the number of vowels, consonants, digits and spaces etc.



**Experiment No. 20:**

**Objective:** Understanding the use of String library methods.

**Task:** Develop an application to print the pattern from given word.



**Experiment No. 21:**

**Objective:** Understanding the Database Handling in JAVA application.

**Task:** Design a Java application to display the records of the **Emp** table of **MYORG** database designed in the MySQL.

The Structure of Emp table is as follows.

Emp [Name Char(40), Designation Char(30), Pay Decimal(9,2), City Char(40)]



**Experiment No. 22:**

**Objective:** Understanding the Database Handling in JAVA application.

**Task:** Design a Java application to display the records of the **Emp** table of **MYORG** database designed in the MySQL. The application provides facility to filter the records on the basis of given Pay.

The Structure of Emp table is as follows.

Emp [Name Char(40), Designation Char(30), Pay Decimal(9,2), City Char(40)]

**Experiment No. 23:**

**Objective:** Understanding the Database Handling in JAVA application.

**Task:** Design a Java application to display the records of the **Emp** table of **MYORG** database designed in the MySQL. The Structure of Emp table is as follows.

Emp [Name Char(40), Designation Char(30), Pay Decimal(9,2), City Char(40)]

1. When Display record button is pressed, all the records are displayed.
2. When Calculate Total Pay button is pressed, the total pay is calculated and displayed in the Total Pay text box.



**Experiment No. 24:**

**Objective:** Understanding the Database Handling in JAVA application.

**Task:** Design a fully featured Java application to navigate the records of the **Emp** table of **MYORG** database designed in the MySQL. The Structure of Emp table is as follows.

Emp [Name Char(40), Designation Char(30), Pay Decimal(9,2), City Char(40)]

1. The First record is displayed when application is executed.
2. Records are displayed in Text boxes as per Navigation Buttons like First, Next etc are clicked.
3. Initially, Save and Cancel Button is disabled. When Add button is clicked, the Save and Cancel button is enabled and all the text boxes are cleared. The record is saved when Save button is pressed.
4. When Delete Button is clicked, the current record is deleted after getting confirmation from the user in Confirm dialog box.
5. When Modify button is clicked, user can edit the record. The modified record is saved when Save button is pressed.

The screenshot shows a Java application window titled "Employee Details". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. The main content area is divided into several sections:

- Form Fields:** On the left, there are four text input fields labeled "Name:", "Designation:", "Pay:", and "City:". The values entered are "Amitabh", "Manager", "30000", and "Lucknow" respectively.
- Operation Panel:** On the right side, there is a panel titled "Opeartion" (note the typo) containing three buttons: "Add", "Delete", and "Modify".
- Save/Cancel Buttons:** Below the operation panel, there are two buttons labeled "Save" and "Cancel".
- Goto Panel:** At the bottom of the window, there is a panel titled "Goto" containing four buttons: "First", "Next", "Previous", and "Last".

**Experiment No. 25:**

**Objective:** Understanding the Web Page and use of different Tags and attributes.

**Task:** Design the following webpage using a Text Editor like Notepad. The following general instructions to be followed.

- The pages should have a Green color as back ground and base font as Arial size 10.
- All heading are in Red.
- Background color of table is sky blue.
- Format the paragraphs Bold, Italic and underline as appeared.



## GLOBAL WARMING- A BURNING ISSUE

### *What is global warming?*

Global warming is when the earth heats up (the temperature rises). It happens when greenhouse gases (**carbon dioxide, water vapor, nitrous oxide, and methane**) trap heat and light from the sun in the earth's atmosphere, which increases the temperature. This hurts many people, animals, and plants. Many cannot take the change, so they die.

### **What causes global warming?**

Many things cause global warming. One thing that causes global warming is electrical pollution. ***Electricity causes pollution in many ways, some worse than others.*** In most cases, fossil fuels are burned to create electricity. Fossil fuels are made of dead plants and animals. Some examples of fossil fuels are oil and petroleum. Many pollutants (chemicals that pollute the air, water, and land) are sent into the air when fossil fuels are burned. Some of these chemicals are called greenhouse gasses. We use these sources of energy much more than the sources that give off less pollution. Petroleum, one of the sources of energy, is used a lot.

### What are people doing to stop global warming?

People are doing many things to try to stop global warming.

- One thing people are doing is carpooling. Carpooling is driving with someone to a place that you are both going to. This minimizes the amount of greenhouse gases put into the air.
- Another thing that people are doing is being more careful about leaving things turned on like the television, computer, and the lights. This helps our planet.
- More people are even riding busses, walking to school, and riding their bikes to lower the amount of greenhouse gases in the air.
- Planting trees and recycling also helps. If you recycle, less trash goes to the dump, and less trash gets burned. As a result, there are fewer greenhouse gasses in our atmosphere.
- Watch what you buy. Many things, such as hairspray and deodorant, now are made to have less of an impact on the atmosphere. Less greenhouse gasses will rise into the air, and global warming will slow down.

**Global Warming Data**

Year	Role of Pollutants (%)		Growth (%)
	Organic	In-Organic	
2008	30	45	8
2009	35	55	12
2010	38	60	18

**Experiment No. 26:**

**Objective:** Understanding the Web Form and use of different components to design an interactive form.

**Task:** Design the following web form using a Text Editor like Notepad. The following general instructions to be followed.

- The form should post to mail-id ([admission@myschool.com](mailto:admission@myschool.com)) when user presses SUBMIT button.
- The course options are BBA, MBA, MCA.
- Use Green color as back ground and base font as Arial size 10.
- Attach the controls as per design.

**ADMISSION ENQUIRY FORM**

**Name :**

**Address:**

**City :**

**Qualification:**  10+2  Graduate  PG

**Gender:**  Male  Female

**Course:**

**Remark:**

**Experiment No. 27**

**Objective:** Understanding the use of DML command at MySQL platform.

**Task:** Open MySQL and Login with your ID and password given by your Teacher. Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

- 1 Write commands to display the system date.
- 2 Write a command to display the name of current month.
- 3 Write command to print the day of the week of your birthday in the year 2015.
- 4 Write the command to round off value 15.193 to nearest ten's i.e. 20.
- 5 Write a query to find out the result of  $6^3$ .
- 6 Create and open Database named MYORG.
- 7 Create a table name Emp with following structure (EmpID Primary Key)

EmpID	EmpName	Designation	DOJ	sal	comm
Number	Varchar	Char(10)	Date	Number	Number

- 8 Insert the following Records-

EmpID	EmpName	Designation	DOJ	Sal	comm
8369	SMITH	CLERK	1990-12-18	800.00	NULL
8499	ANYA	SALESMAN	1991-02-20	1600.00	300.00
8521	SETH	SALESMAN	1991-02-22	1250.00	500.00
8566	MAHADEVAN	MANAGER	1991-04-02	2985.00	NULL
8654	MOMIN	SALESMAN	1991-09-28	1250.00	400.00
8698	BINA	MANAGER	1991-05-01	2850.00	NULL
8882	SHIVANSH	MANAGER	1991-06-09	2450.00	NULL
8888	SCOTT	ANALYST	1992-12-09	3000.00	NULL
8839	AMIR	PRESIDENT	1991-11-18	5000.00	NULL
8844	KULDEEP	SALESMAN	1991-09-08	1500.00	0.00

- 9 Write a query to display all the records with all the columns.
- 10 Write a query to display EmpName and Sal of employees whose salary are greater than or equal to 2200
- 11 Write a query to display details of employs who are not getting commission.
- 12 Write a query to display employee name and salary of those employees who don't have their salary in range of 2500 to 4000.
- 13 Write a query to display the name of employee whose name contains "A" as third alphabet in Ascending order of employee names.
- 14 Write a query to display the ename and sal with 50% of sal as DA.
- 15 Write a query to display details of employs with the text "Not given", if commission is null.
- 16 Display the distinct job titles offered by the Organization.
- 17 Display the Names of employees who are working as Manager or Analyst.
- 18 Display the names of employees who joined on or after 01/05/1991.
- 19 Display the employee records in order by DOJ.
- 20 Display the Distinct Designation in the Organisation.

**Experiment No. 28**

**Objective:** Understanding the use of DML command with MySQL functions.

**Task:** Open MySQL and load MYORG database. Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

- 1 Open database MYORG.
- 2 Create the following Table **DEPT** with DeptID as Primary Key.

DeptID	DeptName	MgrID	Location
Number	Varchar	Number	Char(40)

- 3 Insert the following record in the DEPT Table.

DeptID	DeptName	MgrID	Location
10	SALES	8566	Mumbai
20	PERSONEL	8698	Delhi
30	ACCOUNTS	8882	Delhi
40	RESEARCH	8839	Banglore

4. Alter the table EMP as Add a column DeptID (Number)
5. Add Foreign Key as DeptID which refers DeptID column of DEPT table.
6. Update DeptID of EMP Table with valid DeptIDs to link both tables.
7. Show the minimum, maximum and average salary of Managers.
8. Count the number of Clerk in the Organization.
9. Display the Designation wise list of employees with name, Sal and Date of Joining.
10. Count the number of employees who are not getting commission.
11. Show the average salary for all departments with more than 5 working people.
12. List the count of Employees grouped by DeptID.
13. Display the maximum salary of employees in each Department.
14. Display the name of Employees along with their Designation and Department Name.
15. Count the number of Employees working in ACCOUNTS department.
16. Display the name of employees working in Delhi.
17. Display the name of employees working in the same city from where they belongs.
18. Display the name of Employees who is managing SALES department.
19. Display the name of employees who are working in Delhi and getting more than 5000.
20. Display the details of employees who are working in RESEARCH Department.

**Experiment No. 29**

**Objective:** Understanding the use of DDL commands.

**Task:** Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

1. Create table CUSTOMER as per following Table structure.

Column Name	CustID	CustName	CustAdd	CustCity	CustPhone
Data Type	NUMBER	VARCHAR	VARCHAR	VARCHAR	VARCHAR
Length	7	30	40	30	10
Constraints	Primary			Not Null	

2. Insert 5 records with relevant information in the Customer table.
3. Update all the records as add 'Mr.' with CustName.
4. Add one column Email of data type VARCHAR and size 30 to table Customer.
5. Add one more column CustIncomeGroup of data type VARCHAR(10).
6. Drop the column CustomerIncomeGroup from table Customer.
7. Modify the column CustCity as change the size 40 characters long.
8. Delete all the records who belongs to 'Jaipur'
9. Create table ORDER as per following Table structure. Also make CustNo as Foreign Key which refers CustID of CUSTOMER table.

Column Name	OrderNo	CustNo	ItemName	Qty	Price
Data Type	NUMBER	NUMBER	VARCHAR	NUMBER	NUMBER
Length	5	7	30	5	6,2
Constraints	Primary			>=2	Not Null

10. Add 5 records as per defined constraints in Order table.
11. Create a table TEMPCUSTOMER from existing CUSTOMER table with CustID, CustName and CustPhone columns.
12. Write command to show the Tables in the MYORG Database.
13. Drop the TEMPCUSTOMER table.
14. Drop the Foreign Key constraints from the Order Table.
15. Drop the database MYORG.

**Experiment No. 30**

**Objective:** Understanding the Application Area of IT and latest happening in IT.

**Task:** Do the following task.

1. Visit Three Web sites related to e-Governance and e-Business and point out its major services offered to the people.
2. Open your account in [www.moodle.org](http://www.moodle.org) and make your own page of Interest.
3. Visit your School's website and available Information & Computer Technology (ICT) infrastructure (Number of LABs, PCs , Software etc.). Make a report with your recommendation to improve ICT facilities and Web site.
4. Visit your Library and analyze the requirement for developing a Library Information system. Design an Interactive GUI interface with Menus, expected Reports and Library database with relevant tables.
5. Design, Develop, Test and document an IT Project assigned by your teacher.

## PROJECT – WORK

As per the CBSE's curriculum, students appearing XII examination must assigned and complete a project work. The Project work must be submitted for evaluation at the time of Practical examination.

Students in group of 2-3 are required to work collaboratively to develop a project using Programming and Database skills learnt during the course. The project should be an application with GUI front-end based on any one of the following domains- e-Governance, e-Business and e-Learning.

### How to start your Project work:

#### Stage 1: Submission of synopsis

An individual or group of 2-3 students may choose a topic (or assigned by the teacher) for their project work. You may prepare and submit a Synopsis (Preliminary Study and Analysis Report) in 3-5 pages, including the following-

- Title of the Project.
- Statement about the problem.
- Why is the particular topic chosen?
- Methodology to be used.
- Objective and Scope.
- Process Description (major functions to be developed)
- Hardware & Software to be used – Server, Clients, Back end, Tools, Software platform, programming language etc.
- Role of the Team members in the project.
- Limitations of the Project
- Conclusion
- Reference and bibliography.

After approval of the synopsis by concerned teacher/guide the project work may be started.

#### Stage 2: Plan your project

You may prepare your action plan and time line for different works (Study, design, coding, testing, documentation etc.) to be done during the development of the project. Distribute the task among team members as per role of the members in the project.

#### Stage 3: Develop your Project

The following activities to be done to design a software project-

1. Study the existing system, collect information about the requirement of the user, expected reports etc.
2. Design the Database and tables with proper constraints and fill it with live/test data.
3. Design the Interface/ layout of the screens along with Menus, Forms using GUI controls and tools in IDE.
4. Design the format for Softcopy/Hardcopy Reports.
5. Design the expected methods (processes) and frame their logic to manipulate the stored/entered data.
6. Code the methods in the IDE and test their functionalities and errors etc.
7. Conduct a final Integration testing of the software/system to verify the expected functions.

## Stage 4: Prepare a Project Report (Documentation)

After completing the development and testing work, you have to prepare a Project Report in 30-50 pages of A4 size paper with 1' left, right, top, bottom margin. The report may include the following-

1. Cover Page as per format given in Annexure 1.
2. Project Certificate as per format given in Annexure 1.
3. Acknowledgement
4. Main Report
  - ✓ Objective & Scope of the Project.
  - ✓ Theoretical Background
  - ✓ Definition of Problem
  - ✓ System Planning (Action plan & Time line Chart)
  - ✓ Methodology adopted, Details of Hardware & Software used.
  - ✓ Input and Output Interface/Screen Design with Menus etc.
  - ✓ Printout of the Coding of methods.
  - ✓ Structure of Tables (Column Name, data types, size and constraints etc.)
  - ✓ Test Report, Printout of the Report etc.
  - ✓ User / Operational Manual – (How to install, How to operate etc.)
5. Annexure:
  - ✓ Brief background of the organization.
  - ✓ Reference( Bibliography/ Books/ Websites)

### Suggested Topics for Project Work:

The project should be a Real-life Database based Application with GUI front-end based on any one of the like e-Governance, e-Business and e-Learning, System Utilities etc. The application must handle the fully or partial problem area with complete MIS functionalities.

The following topics/ area may be selected /assigned by/to students (full or part as per complexity and size of the problem area).

1. Banking Application
2. Cyber Café Management Application.
3. School Management Application (Admission/Examination/Staff Mgt/Inventory etc.)
4. Invoicing and Billing Application.
5. Accounting System Application.
6. Computerization of Hotels, Restaurant etc.
7. Testing Applications (Quizzes, Games etc.)
8. Personnel Management System Application of an organization
9. Registration and Job Searching Application for Placement Agencies.
10. Computerization of catalogue of Music/ CD Library /store.
11. Library Information System
12. Computerization of Auto-Vehicle Sales Agencies.
13. Computerization of Auto-Vehicle Service Agencies.
14. Inventory control system Application
15. Ticket/ Reservation system for Bus/Train /Air etc.
16. Theater Booking System Application.
17. Personal Address Book system
18. Computer-Aided Learning Tutorials on any course/subjects.
19. Portfolio Management of Investments/ Financial Transactions
20. Trading system of Shares/Public Issue offer of a company.

## Annexure - 1

### PERFORMA OF COVER PAGE OF THE PROJECT REPORT

<p>Kendriya Vidyalaya .....</p> <p>[Address of the Vidyalaya]</p> <p>A Project Report</p> <p>on</p> <p>[TITLE OF THE PROJECT]</p> <p>For</p> <p>AISSCE 20... Examination</p> <p>As a part of the Informatics Practices Course (065)</p> <p>SUBMITTED BY:</p> <p>[Student Name]</p> <p>[Roll No.....]</p> <p>Under the Guidance of:</p> <p>[Name &amp; Designation of Teacher]</p>
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### PERFORMA FOR PROJECT CERTIFICATE

<b>CERTIFICATE</b>	
<p>This is to certify that the Project / Dissertation entitled, &lt;..Title of the Project..&gt; is a bonafide work done by Mr. / Ms. &lt;..Name of the student.. &gt; of class &lt; class with section &gt; Session &lt;Academic session&gt; in partial fulfillment of CBSE's AISSCE Examination 20.. and has been carried out under my direct supervision and guidance. This report or a similar report on the topic has not been submitted for any other examination and does not form a part of any other course undergone by the candidate.</p>	
..... Signature of Student	..... Signature of Teacher/Guide
Name: .....	Name: .....
Roll No.: .....	Designation: .....
..... Signature of Principal	
Name: .....	
Place:.....	
Date:.....	

## Class XII – Practical Examination Guidelines

S.No.	Description	Marks
1.	Problem Solving using Java	10
2.	SQL Queries	4
3.	Practical Record • Simple Problems using IDE Java • SQL Queries • IT Applications	6
4.	<b>Project Work</b>	4
5.	<b>Viva Voce</b>	6
<b>TOTAL</b>		<b>30</b>

### Evaluation of Practical Examination

#### 1. Problem solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file.

Student will be given a problem to be solved using Java during final Practical examination to be conducted at the end of the academic session

#### 2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory.

Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

#### 3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- At least 12 solutions of simple problems and 2 IT applications using IDE based Java.
- At least 24 SQL queries based on one and/or two tables.
- Solution of at least 2 simple problems incorporating Java Application & Database connectivity.

#### 4. Project File

Students in group of 2-3 are required to work collaboratively to develop a project using Programming and Database skills learnt during the course. The project should be an application with GUI front-end based on any one of the following domains- e-Governance, e-Business and e-Learning.

#### 5. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session.