***Java programming fundamentals***

**1. Guessing game which involves a game object and 3 player objects. The game**

**generates a random number between 0 and 9 and the 3 player objects try to**

**guess it.**

**2. Create your own calendar class and perform various operations on it with**

**3. Create a box class having instance variables width and height and having**

**various instance methods with and without arguments and performing various**

**operations on it. It must have default and parameterized constructors too. Use**

**this variable in the constructors and perform garbage collection using finalize()**

**method.**

**4. Stack operations using class, objects, instance variables, constructors, garbage**

**collector and super keyword.**

**5. Create class Student (roll number, name, number of subjects, marks of each**

**subject).No. of subjects varies for each student. Write a parameterized**

**constructor which initializes roll number, name, number of subjects and create**

**the array of marks dynamically. Display details of all students with percentage**

**and class obtained. Use inner class too.**

**6. Using class implement HASHTable to:**

**Accept records of n students(name, percentage).**

**Display details of all students. Find out highest marks**

**7. Demonstration of Java Program with logical operators, shorthand assignment**

**operators, condition operators, bitwise operators.**

**8. Java program with use of type casting.**

**9. Accept the number from command line and calculate sum of digits.**

**10. Java program to illustrate the various scopes of variables: static scope, block**

**scope, method local scope, instance scope.**

**11. Demonstrate how one class can be defined in another class.**

**12. Copying of one array into another, sort list of numbers.**

**13. Program to illustrate concatenation of 2 strings and usage of various string**

**methods and alphabetic ordering of strings.**

**14. Demonstration of comparison between equals() and ==.**

**15. Demonstrate manipulation of Strings using StringBuffer and StringBuilder**

**classes.**

**16. Demonstration of replace() method from StringBuffer which is used to**

**replace full string.**

**17. Take 2 String inputs from user. Convert String 1 in upper and String 2 in**

**lowercase. Concatenate both strings and display results.**

**18. Pascal Triangle using array.**

**19. Java Program that inputs a person's name in form of First Middle Last, and**

**then prints it in form Last First M., where "M" is person's middle initial.**

**20. Perform operations on matrix.**

**21. Accept 2 strings as command line arguments. Check if 2nd string is substring**

**of 1st string.**

**22. Convert string into decimal, binary and hexadecimal.**

**23. Demonstration of randomly automated decision maker using Random Class.**

**24. Find square root of number from Math Class.**