1 Week-1: Introduction to Java

1. Wha is language processor? Write about compiler, interpreter and assembler?

2. What is java? What are the features of Java?

3. Is java compiled or interpreted language? Give reason.

4. Write about JDK. JRE and JVM.

5. Why is Java called a cross platform language? What makes java a cross platform language?

6. What is source code? What is the extension of Java source code file?

2 Week-2: Syntax, Semantics, Structure of Java Pro- gram

1. Is Java case sensitive language? Write an example showing this.

2. What is an identifier?

3. What are the rules for naming an identifiers in Java? Give examples.

4. Only two special symbols are allowed to be used while naming identifiers in Java. What are they? Give valid examples.

5. What are reserved words (or keywords) in Java? Write at least 15 commonly used. keywords in Java.

6. What is a variable? Write the rules for naming variables in Java with examples.

7. Can we declare same variable two times inside same block?

8. There are three types of variables in Java. What are they? Explain each with an example.

9. Is Java statically typed language or dynamically typed language? Give reasons. Also mentioned the benefits of statically typed language.

3 Week-3: Comments, Data Types

1. Explain about comments in Java (what are they and why do we use them?). There are three types of comments in Java. Explain about them (with syntax).

2. Explain about data types.

3. In Java data types are categorized into Primitive and Non-Primitive types. Further categorize primitive data types.

4. There are eight primitives data types in Java. List each of them.

5. List non-primitive data types.

6. Explain about primitive data types including their length (size in bits as well as bytes), default values, minimum values, maximum values.

7. Write a Java program that shows the use of each primitive types.

8. Does char data type used unicode or ASCII coding system to represent character?

9. Define operator and operand. Explain the types of operators in Java.

10. Explain (with an example of each type using a Java program):

(a) assignment operator

(b) relational operator

(e) logical operator

(d) arithmetic operator

(e) bit-wise operator

(f) unary operator

(g) ternary operator

11. Describe about literals. List the types of literals in Java with an example (Java code).

12. Differentiate between postfix and prefix unary operator with an example.

13. Differentiate between / and % operator in Java

14. Which operators show "short-circuiting" behavior? Why? Give an explanation.

15. What is String concatenation? Which operator is used to perform concatenate String in Java? Write a Java program that performs String concatenation with your name. and

display fullname (Hint: declare firstname, lastname, and fullname variable. Value of firstname and lastname should be concatenated into fullname variable).

4 Week-4: Conditional & Unconditional Control State- ments

1. Describe about the types statements in Java (with an example of each type).

2. What do you mean by control statement? List the types of control statements.

3. Describe about the following types of conditional control statements (including an example of each type using a Java code)

(a) if statement

(b) nested-if statement

(c) if-else statement

(d) if-else-if statement

(e) switch statement

4. Differentiate between two unconditional control statements break and continue including a Java program. Where do we use these statements?

5. What are escape sequences? Why do we use them? List all the escape sequences used in Java along with description and an example program.

5 Week-5: Looping Control Statements

1. What is the use of looping control statement? We can reduce repetitive code using loop. Is the statement true? Give reason. Also write an example in Java that validates your claim.

2. There are three basic types of loop in Java. What are they? Write the syntax for each type explaining different types like initialization, condition and increment/decrement part.

3. Explain about three three basic types of loop in Java by giving an example of cach.

4. What is an entry controlled loop? Which loop is called an entry controlled loop in Java? Write syntax.

5. What is an exit controlled loop? Which loop is called an exit controlled loop in Java? Write syntax.

6. Differentiate between whiled-while loop.

7. What is the use of break and default keyword in switch statement in Java? Is default keyword mandatory in switch statement?

8. Switch statement shows fall-through behavior. What does it mean? Write an example program.

9. What is the use of Scanner class in Java? What are some commonly used methods. in Java? Write a Java program using that asks user to enter his/her name, age, gpa score and display the provided information (Hint: use scanner class)

6 Week-6: Arrays

1. Define an array. What are the characteristics of an array?

2. Write every valid syntax of defining an array in Java. Also mention which syntax is the recommended way of declaring an array in Java.

3. Can we mix integer value in an array of String values? Why?

4. What does index represent in an array?

5. What is starting position of an array index?

6. What is an element in the context of an array?

7. What is the index of first and last elements in an array (Suppose length of an array is N)?

8. What do you mean by length/size of an array?

9. What is the name of property/variable used to find the length of an array in Java? Write syntax.

10. Write a program that declares the array named age of integer type of length 5 and store five values by giving an index for each value. Example: age [1]=50;

11. Array is a reference type variable. Why?

12. Examine the following array and answer the following question:

String[] students ("ran", "hari", "maya", "chhaya", "anjal", bhumika", "donald", "tapas");

(a) What is the length/size of the given array?

(b) What is the index of first element?

(c) What is the index of last element?

13. Write a Java program that displays all the names shown in above array (Hint: use loop)

14. Explain about single dimensional and multi-dimensional arrays including a syntax and an example of each type.

15. Write some applications of an array in.

16. Given an array, answer the following question:

int[] age (61,69,66,33,72,53,38,83,9);

(a) Write a program to find largest value.

(b) Write a program to find smallest value

(c) Write a program to find sum of all the elements

(d) Write a program to find average of these elements

7 Week-7: Object Oriented Programming

1. Define the concept of object oriented programming (OOP).

2. What are the features/principles of OOP language? Explain.

3. What are the four pillars of OOP? Explain.

4. Describe the concept of class and an object.

5. Differentiate between class and an object.

6. Write Syntax to declare class and object in Java.

7. Every object has an attribute and a behavior. What do these represent?

8. What is an instance in OOP?

9. Define the concept of package in Java.

10. Write a Java program with the following instruction:

Create Student class

Create two fields: name and age

Create another class named Main

Create two objects (student1 and student2) of Student class in main method of Main class,

Set value of each fields using student1 and student2 object.

8 Week-8: Method and Constructor

1. What is method in Java? Can a method exist without class in Java?

2. What are the types of method in Java? Give an example of each.

3. Explain about instance variable, instance method, static variable and static methods in Java.

4. Differentiate between static and instance method.

5. Write a syntax to declare a method in Java.

6. What are the types of access modifiers in Java? Explain each.

7. What is return type in the context of method?

8. What is a parameter? How do you pass a single/multiple parameter? Can we define a method without any return type (remember: void is also a return type that returns nothing)?

9. What are the types of parameters in Java? Explain by giving an example.

10. How do you call/invoke a method? Give example.

11. How do you call instance method? Give example.

12. How do you call static method? Give example.

13. Describe the concept of method overloading.

14. What are the rules for achieving method overloading?

15. What is a constructor? Why do we use them?

16. What are the properties of a constructor?

17. Can we define more than one constructor in same class?

18. What are the types of constructor in Java?

19. Can we overload constructor?

20. What happens if we don't write default/no-argument constructor explicitly?

21. If we have constructor with parameters, we have to explicitly define an empty/no- argument constructor. Is the statement true or false? Write.

22. Write a Java program to overload a method.

23. Write a Java program that show the use of constructor and constructor overloading

24. What is this? When do we use this? Write about need for this keyword in Java.