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**Object-Oriented Programming with Java**  
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## Sample Questions

### Lesson 1

1. Sketch and describe the five phases of the development and execution cycle of Java.
2. What is the difference between JDK and JRE?
3. Discuss the JVM and the types of JVM.
4. What do you understand with portability of the bytecode?
5. What is just-in-time compilation?
6. Explain the difference between fatal and non-fatal runtime errors.

### Lesson 2

7. Give an example of an escape sequence.
8. What is the meaning of the escape sequence “\t”?

### Lesson 3

9. Discuss the relationship of arguments and parameters. Discuss compilation errors related.
10. Discuss the difference between local variables and object attributes.
11. What is an instance variable? Give an example.
12. Explain the private access modifier. What is the relationship with Information Hiding?
13. How are instance variables initialized by default? Give an example.
14. Explain the difference between a primitive type and a reference type. Give an example.
15. What happens when you try to use an uninitialized local variable?
16. What is the default constructor? What happens with the default constructor if you declare your own constructor?
17. What is the meaning of the format specifier “%.2f”?
18. Explain the use of JOptionPane’s method showDialog.

#### Lesson 4 Part-1

19. Explain the result demonstrated by Bohm and Jacopini related to program development.
20. Describe with an example in Java when a program can enter an infinite loop.
21. Explain the purpose of a cast operator. Give an example.
22. Give an example of the difference between prefix and postfix increment of an int variable.
23. What is JPanel? How is it used together with JFrame? Give a short example.

#### Lesson 4 Part-2

24. What is the meaning of the format specifier “%-20s”?
25. What is the meaning of the format specifier “%,20.2f”?
26. What is the difference between “while” and “do...while” statements?
27. How does the method hasNext work in the class Scanner? When does it stop?
28. Describe the effect of the break and continue statements when executed in a while, for or do...while statement.
29. Describe the effect of the break statement when executed in switch statement.

#### Lesson 5 Part-1

30. What is the purpose of a class variable? Give an example in Java.
31. How does the JVM call the main of a class when the class does not exist yet?
32. Describe what can static and not static methods of a class access in the class regarding fields?
33. What is argument promotion? Give an example.
34. What is method overloading? How does the compiler distinguish among overloaded methods?
35. Can overloaded methods be distinguished based on return types? Give an example of an error of this kind.
36. How are colors defined in Java? Give an example.

#### Lesson 5 Part-2

37. What is a primitive-type array and a reference-type array?
38. Explain the use of **final**?
39. Give an example of the **enhanced for** statement.
40. How are passed arrays to methods in Java? Why?
41. Explain the difference between **call-by-value** and **call-by-reference**. Give a simple example.
42. What are variable-length argument lists? Give an example.
43. How can we specify command line arguments in Java? Give an example.
44. Explain one method of your choice of the class Arrays. Give an example.
45. What is the main difference of the class ArrayList with the simple array?

### Lesson 6 Part-1

46. What is the purpose of the keyword **this**? Give an example.
47. Explain shadowing? How can we avoid it with **this**? Give an example.
48. What is Composition in classes? Give an example.
49. Can we access **static public** methods of a class through a reference to an object of the class?
50. Explain why the **this** reference cannot be used in a static method.
51. Explain **package access** with an example.

### Lesson 6 Part-2

52. Explain the main difference between String and StringBuilder.
53. What are type-wrapper classes? Give an example.
54. How can we tokenize a string? Give an example.
55. What is the purpose of replace in the class String? How can you do the same operation in StringBuilder?

### Lesson 7

56. Give an example of Inheritance by sketching only the declaration code in Java.
57. What is the purpose of the modifier “protected”?
58. Why “protected” should usually be replaced with “private”? Give a short example of good software engineering practice on this.
59. What happens if you override a public method as private in a subclass?
60. What is the effect on the subclass of making private an instance variable in the superclass?

### Lesson 8

61. Give a simple example of polymorphism.
62. Explain dynamic binding.
63. Explain abstract classes. Give an example of abstract superclass.
64. Describe the four ways to assign superclass and subclass references to variables of superclass and subclass types.
65. Give an example of an interface

### Lesson 9

66. Explain the scope of local variables for try and catch blocks.
67. Explain the difference between checked and unchecked exceptions.
68. Explain the use of **finally** in exception handling.
69. Discuss the relationship among superclass and subclass exception types and the order of catch blocks.
70. Give an example of stack unwinding.
71. Give an example exception chaining.