SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE – 35

DEPARTMENT OF COMPUTER SIENCE AND ENGINEERING (UG & PG)

Third Year Computer Science and Engineering, 3rd Semester

2 Marks Question and Answer

Subject Code &Name: 23CSB201 & OBJECT ORIENTED PROGRAMMING

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UNIT II

1. What is a control structure in Java and give an example?
   A control structure in Java directs the flow of execution of a program. Examples include if statements, for loops, and while loops.

2. How do arrays differ from individual variables in Java?
   Arrays are data structures that store multiple values of the same type in a single variable, while individual variables store a single value of a specific type.

3. What is the purpose of access specifiers in Java?
   Access specifiers determine the visibility and accessibility of classes, methods, and variables. Examples include public, private, and protected.

4. Explain the role of a constructor in a Java class.
   A constructor initializes new objects of a class. It sets initial values for object attributes and ensures the object is properly set up.

5. What is a default constructor in Java?
   A default constructor is a no-argument constructor that Java provides automatically if no other constructors are defined. It initializes object attributes to default values.

6. How does a parameterized constructor differ from a default constructor in Java?
   A parameterized constructor takes arguments to initialize an object with specific values, whereas a default constructor does not take any arguments and initializes the object with default values.

7. What is the purpose of a copy constructor in Java?
   A copy constructor creates a new object by copying the attributes of an existing object, allowing for the duplication of object instances.

8. Describe the role of garbage collection in Java.
   Garbage collection automatically deallocates memory that is no longer in use by objects, helping to prevent memory leaks and manage memory efficiently.

9. How do methods in Java interact with attributes of a class?
   Methods in Java can access and modify the attributes of a class. They operate on data within an object and can perform operations based on the attribute values.

10. What is the difference between a method and an attribute in a Java class?
    An attribute is a variable that holds data for an object, while a method is a function that defines behaviors or actions that can be performed by or on the object.

11. How does the concept of objects and classes support encapsulation in Java?
    Objects encapsulate data and behaviors within classes, allowing for controlled access to the internal state through methods while hiding the implementation details from outside classes.

12. What is the significance of the protected access specifier in Java?
    The protected access specifier allows access to class members within the same package and by subclasses, providing a balance between private and public access.

13. Provide a brief example of how to declare and initialize an array in Java.
    int[] numbers = {1, 2, 3, 4, 5}; declares and initializes an array of integers with values 1 through 5.

14. How does Java handle memory management for objects no longer in use?
    Java handles memory management through garbage collection, which automatically identifies and reclaims memory occupied by objects that are no longer referenced.

15. Explain the difference between instance variables and class variables in Java.

Instance variables belong to a specific object and have different values for each instance, while class variables (declared with the static keyword) are shared among all instances of the class.

16. What is the role of the this keyword in a Java class?
    The this keyword refers to the current instance of a class, allowing access to instance variables and methods from within the class and distinguishing between instance variables and parameters with the same name.

17. What is a control structure in programming?
    A control structure is a block of code that determines the flow of control in a program. It allows a program to make decisions, execute a sequence of statements conditionally, or repeat statements.

18. Differentiate between if-else and switch control structures.
    if-else is used for decision-making with conditions, typically when there are a few outcomes. switch is used for multiple outcomes based on a single variable's value, offering a cleaner syntax when dealing with numerous cases.

19. Explain the use of a while loop with an example.
    A while loop repeatedly executes a block of code as long as the given condition is true.
    Example:
    java
    Copy code

```
int i = 0;
while (i < 5) {
  System.out.println(i);
   i++;
}
```

20. Define an array and give an example.
    An array is a collection of elements of the same data type stored in contiguous memory locations.
    Example: int[] numbers = {1, 2, 3, 4, 5};

21. How is memory allocated for an array in Java?
    Memory for an array is allocated in the heap, and the size of the array is fixed when it is instantiated.

22. What are the advantages of using arrays in programming?
Arrays allow efficient storage and access of multiple elements of the same type using a single variable name, and they provide easy indexing to access any element.

23. What is a class in object-oriented programming?
A class is a blueprint or template for creating objects. It defines properties (attributes) and behaviors (methods) that the objects created from the class will have.

24. Differentiate between objects and classes.
A class is a blueprint, while an object is an instance of that class. The class defines the structure, while the object is a concrete entity based on that structure.

25. What is an object in Java?
An object is an instance of a class that contains both state (attributes) and behavior (methods). It represents a real-world entity in programming.

26. List the different access specifiers in Java.
The access specifiers in Java are private, protected, public, and default (package-private)

27. What is the purpose of the private access specifier?
The private access specifier restricts access to class members (variables or methods) such that they can only be accessed within the class they are declared in.

28. Explain the use of the public access specifier.
The public access specifier allows class members to be accessed from any other class in the program.

29. What is a method in a class?
A method is a function defined inside a class that represents a behavior or operation that can be performed by objects of the class.

30. How do attributes differ from methods in Java?
Attributes (also known as fields or variables) represent the state or

characteristics of an object, while methods represent the actions or behaviors that an object can perform.

31. What is a constructor in Java?
    A constructor is a special method in a class that is used to initialize objects. It is called when an object of the class is created.

32. Explain the purpose of a default constructor.
    A default constructor is a constructor provided by Java if no other constructors are defined in the class. It initializes objects with default values.
33. What is the difference between a default and a parameterized constructor?
    A default constructor does not take any arguments and initializes objects with default values. A parameterized constructor takes arguments to initialize objects with specific values.

34. What is garbage collection in Java?
    Garbage collection is the process of automatically reclaiming memory by the Java runtime environment when objects are no longer in use or reachable.

35. Why is garbage collection important in programming?
    Garbage collection helps prevent memory leaks and ensures efficient use of memory by automatically freeing up space occupied by objects that are no longer needed.

UNIT III

UNIT IV

UNIT V