

# ***Java exam 21<sup>st</sup> July***

## ***Complete program 1 ,2 ,3 and anyone (4 or 5).***

1. Write a Java program that reads a list of integers from the user and throws an exception if any numbers are duplicates.
2. Write a Java program to create a method that takes a string as input and throws an exception if the string does not contain vowels.
3. Write a Program to Find Sum of all the elements in an Array of Number.
4. Write a Java Program to find the reverse of the number.
5. Write a Java Program that will ask the user for a number and then check whether the number is a perfect number or not.
  - a. **(Perfect number is a positive integer that is equal to the sum of its positive proper divisors)**
  - b. **Ex:- 6 has proper divisors 1, 2 and 3, and  $1 + 2 + 3 = 6$ , so 6 is a perfect number**

## ***Multiple/Single choice questions***

1. Which principle allows different classes to be treated as instances of the same class through inheritance?
  - a. Encapsulation
  - b. Abstraction
  - c. Inheritance
  - d. Polymorphism
2. Which statement is true regarding polymorphism?
  - a. An overridden method can be less restrictive than the superclass method
  - b. An overridden method can be more restrictive than the superclass method
  - c. Overloaded methods cannot change the return type
  - d. Constructors can be overridden
3. In polymorphism, a reference variable of the superclass can refer to the object of which classes?
  - a. Only the superclass
  - b. Only the subclass
  - c. Any class
  - d. The superclass or any of its subclasses

4. When Overloading does not occur?
  - a. More than one method with same name but different method signature and different number or type of parameters
  - b. More than one method with same name, same signature but different number of signature
  - c. More than one method with same name, same signature, same number of parameters but different type
  - d. More than one method with same name, same number of parameters and type but different signature
5. What is the implicit return type of constructor?
  - a. No return Type
  - b. A class Object which it is defined
  - c. Void
  - d. None
6. What happens if a class implements two interfaces with default methods of the same name?
  - a. It takes the first interface's method
  - b. It takes the second interface's method
  - c. It must override the conflicting method
  - d. Throws a runtime error
7. Static methods in interfaces
  - a. Can be overridden
  - b. Cannot be overridden
  - c. Can be instantiated
  - d. Are always abstract
8. The "diamond problem" in programming refers to
  - a. Memory issues in OOP
  - b. Multiple inheritance ambiguity
  - c. Lack of abstraction
  - d. Too many static methods
9. Which access modifier in Java allows access within the same package and subclasses?
  - a. public
  - b. private
  - c. protected
  - d. default
10. In which scenario would you use the protected access modifier?
  - a. To hide a class member from other classes in the same package
  - b. To allow access only within the same class
  - c. To allow access to subclasses, including those in different packages
  - d. To allow access to any class within the same package
11. Which data type is used to store a single character in Java?
  - a. char
  - b. String

- c. int
  - d. single
12. Which keyword in Java is used for constant variables?
- a. const
  - b. static
  - c. constant
  - d. final
13. In a while loop, when is the condition checked?
- a. After the code block is executed
  - b. Before the code block is executed
  - c. Only once at the beginning of the loop
  - d. At the end of the loop's execution
14. What will be the output of the following code?
- ```
int i = 0;
while (i < 3) {
    System.out.println(i);
    i++;
}
```
- c. 0 1 2 3
  - d. 0 1 2
  - e. 1 2 3
  - f. No output
15. Can an overridden method change the access level of the base method?
- a. Yes, to any level
  - b. No, it must be the same
  - c. Yes, but it cannot be more restrictive
  - d. Yes, but it must be more restrictive