BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – BCA-Hons-2023
Course Name – Object Oriented Programming in JAVA
Course Code - BCA30108
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Which feature of OOP indicates code reusability?
a) Inheritance b) Polymorphism
c) Abstraction d) Encapsulation

(ii) Select the data type which is created by the data abstraction process.
a) Class b) Structure
c) Abstract data type d) User-defined data type

(iii) Which of the following correctly matches the encapsulation principle?
a) A mechanism to associate the code and data. b) Dynamic binding
c) Data abstraction d) Creating new class

(iv) Which of the following best describes a metaclass in Java?
a) A class that can only be instantiated once. b) A class whose instances are other classes.
c) A class that contains methods for handling exceptions. d) A class used to manage file operations.

(v) Indicate how multiple inheritance can be achieved in Java.
a) Interfaces b) Classes
c) Super Classes d) Public Methods

(vi) State which keyword restricts a variable from being inherited by a subclass.
a) protected b) private
c) public d) default

(vii) Select the package where the System class is defined.
a) java.lang b) java.util
c) java.object d) None of these

(viii) How can abstraction be implemented in Java?
a) Only through interfaces b) Only through abstract classes

c) Through private methods
d) Through both abstract classes and interfaces

(ix) Which keyword is used to prevent concurrent access to methods in Java?
a) static
b) synchronized
c) volatile
d) transient

(x) Indicate what will be the output of the following code: int a = 10, b = 20; System.out.println(a++ + ++b);
a) 30
b) 31
c) 32
d) 33

(xi) Indicate what will be the output of the following code: String str = "Hello"; str.concat(" World"); System.out.println(str);
a) Hello
b) World
c) Hello World
d) Compilation Error

(xii) Select which is not a primitive data type.
a) boolean
b) char
c) array
d) int

(xiii) Indicate what will happen if a constructor in Java is declared with a return type.
a) Compilation error
b) Runtime error
c) Compilation and runs successfully
d) Only String return type is allowed

(xiv) Indicate which method of BufferedReader class can be used to read Strings from the keyboard.
a) readChar()
b) readLine()
c) nextInt()
d) nextLine()

(xv) Indicate the impact of immutability of a string in Java.
a) It cannot be converted to uppercase.
b) It cannot be concatenated with other strings.
c) Its value cannot be changed after it is created.
d) It cannot be passed as an argument to a method.

Group-B
(Short Answer Type Questions) 3 x 5=15

2. Define class and object in Java through examples. (3)
3. Illustrate association, aggregation, and composition with suitable examples. (3)
4. Demonstrate the concept of returning an object from a method in Java. (3)
5. Write differences between method overloading and method overriding in Java. (3)
6. Discuss the security restrictions imposed on Java applets. (3)

OR

Explain the differences between a Thread and a Process. (3)

Group-C
(Long Answer Type Questions) 5 x 6=30

7. Explain the advantages of packages in Java. (5)
8. Show the use of the final keyword in Java with a proper example. (5)
9. Demonstrate how interfaces enable multiple inheritance in Java. Provide an example. (5)
10. Examine the usage of the finally block in Java with an example. (5)
11. Discuss the differences between checked exceptions and unchecked exceptions in Java. Provide examples of each type. (5)
12. Design a class with a method that takes an array as input and returns the reversed array as output. (5)

OR

Develop a Java program to search for an element in an array and print the index of all occurrences. (5)

****