



**BRAINWARE UNIVERSITY**

**Term End Examination 2018 - 19**

**Programme – Bachelor of Science (Honours) in Computer Science**

**Course Name - Object Oriented Technologies**

**Course Code – BCS402**

(Semester – 4)

**Time allotted: 3 Hours**

**Full Marks : 70**

[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)

10 x 1 = 10

1. *Choose the correct alternative from the following*

- (i) A process that involves recognizing and focusing on the important characteristics of a situation or object is known as
- |                  |                 |
|------------------|-----------------|
| a. Encapsulation | b. Polymorphism |
| c. Abstraction   | d. Inheritance  |
- (ii) Which of these keywords is not a part of exception handling?
- |            |           |
|------------|-----------|
| a. try     | b. thrown |
| c. finally | d. catch  |
- (iii) Which method is used to implement Runnable interface?
- |                |                 |
|----------------|-----------------|
| a. stop()      | b. run()        |
| c. runThread() | d. stopThread() |
- (iv) Given a class named student, which of the following is a valid constructor declaration for the class?
- |                                  |                            |
|----------------------------------|----------------------------|
| a. Student (student s) { }       | b. Student student ( ) { } |
| c. Private final student ( ) { } | d. Void student ( ) { }    |

- (v) In Java, declaring a class abstract is useful
- a. To prevent developers from further extending the class
  - b. When it doesn't make sense to have objects of that class
  - c. When default implementations of some methods are not desirable
  - d. To force developers to extend the class not to use its capabilities
- (vi) What is the error in the following class definitions?
- ```

Abstract class xy
{
abstract sum (int x, int y) { }
}
    
```
- a. Class header is not defined properly.
  - b. Constructor is not defined.
  - c. Method is not defined properly
  - d. Method is defined properly
- (vii) Which of these field declarations are legal within the body of an interface?
- a. Private final static int answer = 42
  - b. public static int answer=42
  - c. final static answer =42
  - d. int answer
- (viii) A method within a class is only accessible by classes that are defined within the same package as the class of the method. Which one of the following is used to enforce such restriction?
- a. Declare the method with the keyword public
  - b. Declare the method with the keyword private
  - c. Declare the method with the keyword protected
  - d. Do not declare the method with any accessibility modifiers
- (ix) What is the output of the following program:
- ```

class Test {
public static void main(String args[]) {
System.out.println(10 + 20 + "GeeksQuiz");
System.out.println("GeeksQuiz" + 10 + 20);
}
}
    
```
- a. 30GeeksQuiz
  - b. 1020GeeksQuiz
  - c. 30GeeksQuiz
  - d. 1020GeeksQuiz
  - GeeksQuiz30
  - GeeksQuiz1020
  - GeeksQuiz1020
  - GeeksQuiz30

- (x) Which of the following is true about inheritance in Java?
- 1) Private methods are final.
  - 2) Protected members are accessible within a package and inherited classes outside the package.
  - 3) Protected methods are final.
  - 4) We cannot override private methods.
- a. 1, 2 and 4  
 b. Only 1 and 2  
 c. 1, 2 and 3  
 d. 2, 3 and 4

### Group – B

(Short Answer Type Questions)

3 x 5 = 15

Answer any *three* from the following

2. “Java supports multiple inheritance using interface”--- justify it. 5
3. Explain different types of Access qualifier in Java in respect to a class. 5
4. Define an Applet. How is an Applet different from an application? 5
5. Explain with examples, the various graphics methods supported by AWT. 5
6. What are final variables and methods? 5

### Group – C

(Long Answer Type Questions)

3 x 15 = 45

Answer any *three* from the following

7. (a) What is method overloading? How does it differ different from method overriding? Explain with an example. 7
- (b) Write a program to implement Multiple Inheritance using Interfaces. Also explain the process. 8
8. (a) What is Polymorphism? Write code to exemplify Polymorphism using Interface. 3+6
- (b) Briefly describe the different stages of Applet life cycle. 6

9. (a) Write a program to demonstrate the use of File & data Input/ Output stream. 6  
(b) Discuss various access modifiers available in Java? How access modifier effect the visibility of a member in different access locations? 4+5
10. (a) Write Java Code to trap a button click event and print a message “Hello World”. 5  
(b) Write steps to create a executable jar file in Java. 5  
(c) Can you define a private constructor in a class? If Yes, discuss its effect in the respective class. 5
11. (a) What is a Constructor? 5  
(b) What do you mean by the term Constructor Overloading? 5  
(c) Write a recursive java method to return the summation of first 10 natural numbers. 5

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