

**2021**

**COMPUTER SCIENCE — HONOURS**

**Paper : CC-12**

**(Object Oriented Programming)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer **question no. 1** and **any four** questions from the rest.

1. Answer **any five** questions : 2×5
  - (a) What is mutable string?
  - (b) What is the use of abstract class in Java?
  - (c) What is the base class of Error and Exception?
  - (d) What is the use of 'this' keyword in Java?
  - (e) What is a Copy Constructor?
  - (f) What Java is called platform independent?
  - (g) How vector differs from a list?
  - (h) What is the use of finally () method in Java?
2. (a) What is inheritance in Java? Explain different types of inheritance with example.  
(b) Explain with the help of an example, how Java gets benefited by using Interface. (2+3)+5
3. (a) How does String class differ from String buffer class?  
(b) What are Implicit and Explicit Casting? Explain with the help of example. 5+(2+3)
4. (a) What is the difference between 'error' and 'exception'?  
(b) Illustrate 'ArrayIndexOutOfBoundsException' exception with an example.  
(c) Define an exception called "NotEqualException" that is thrown when a float value is not equals to 3.14. Write a program that uses that user defined exception. 3+2+5
5. (a) What is the difference between Method Overloading and Method Overriding?  
(b) Explain Dynamic Method Dispatch with suitable example.  
(c) Write a program in Java to access static variable and static method to explain 'static' keyword properly. 3+3+4

**Please Turn Over**

6. (a) What is multithreading?
- (b) Explain the difference between creation of user thread by extending thread class and implementing runnable interface with a suitable example.
- (c) What is thread synchronization? How it is achieved in Java? 2+4+(2+2)
7. (a) Explain the life-cycle of an Applet.
- (b) List various attributes of Applet tag used in HTML.
- (c) Write a Java program that uses the draw Polygon () method of Graphics class to draw a triangle with endpoints (28, 35); (78, 82) and (43, 43) 3+2+5
8. (a) What are the different access specifiers available in Java? How a protected access specifier differs from private access specifier?
- (b) How an array is declared in Java? Write a program in Java to sort an array in ascending order and display it. (2+2)+(2+4)
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