2020

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 byte code?

   (b) What restriction are applied to the Java Static methods?

   (c) Differentiate between a compiler and an interpreter.

   (d) What is 'overloading'?

   (e) State the difference between the length of a string buffer object and its capacity.

   (f) Write the difference between a constructor and a method.

   (g) State the purpose of garbage collection.

   (h) What is the functionality of JVM?

2. (a) What is private access specifier? Explain with an example, how is it different from public and protected access specifiers.

   (b) Explain life cycle of an applet.   (2+4)+4

3. (a) Write a Java program to check whether a string is palindrome using command line argument.

   (b) How will you perform type casting in Java?

   (c) Explian with an example how *Labelled loop* works in Java.   5+2+3

4. (a) State the differences between the string and stringbuffer classes in Java.

   (b) Explain with example, how copy constructor is used in Java.

   (c) Discuss about different types of throwable exceptions in Java.   3+3+4

Please Turn Over

5. (a) Predict the output of the following code and comment of your answer.

```
Class leftshift_operator
 {
    Public  static  void  main  (string  avgs[ ])
    {
      byte  x=64;
      int  i;
      byte  y;
      i=x<<2;
      y=(byte)(x<<2);
      System.out.print  (i+ " " + y);
    }
 }
```

(b) What are the different types of AWT components? How are these components added to the container?

(c) Explain how multiple inheritance can be implemented in Java.   2+(2+3)+3

6. (a) What is a vector? How does it differ from an array and list?

(b) Write a program to count the number of words in a given sentence.   (2+3)+5

7. (a) Design an interface called shape with methods draw() and getArea(). Further, design two classes Circle and Rectangle that implements shape to compute area of respective shapes. Write a JAVA program for the same.

(b) How thread synchronization is acheived in Java?   (3+3)+4

8. (a) Let *i* be an integer and *f* be a floating point number. Explain the difference between $i = (int) f$; and $i = (int)$ *Math.round(f)*; For what value of *f* do they give the same result? For what value of *f* do they give different result? What happens if *f* is negative?

(b) What does the variable CLASSPATH signify?

(c) Elaborate the steps to create your own package in Java.   (1+1+1)+2+5

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