# 2018

( October )

## COMPUTER SCIENCE

( Honours )

**( Object-Oriented Programming through Java )**

( CS-502 CT )

*Marks* : 38

*Time* : 2 hours

*The figures in the margin indicate full marks for the questions*

Answer **one** question from each Unit

### UNIT—I

1. *(a)* Briefly explain any two object-oriented programming features. 2

*(b)* Differentiate the following : 2+2+2=6

*(i)* JDK and JRE

*(ii)* The logical AND (&) and the short circuit AND (&&)

*(iii)* The traditional *"for loop"* and the new *"for-each loop"*.

2. (a) How is bytecode related to platform independence? 2

(b) What do you understand by static methods? What restrictions do static methods have? 1+3=4

(c) What does an explicit conversion from an **int** to a **byte** do when the value of the integer-type variable is out of the range of the byte data type? 2

UNIT—II

3. (a) Answer the following : 1+1+1+1=4

(i) How do you explicitly invoke a superclass constructor from a subclass?

(ii) How do you invoke an overridden superclass method from a subclass?

(iii) How do you prevent a class from being extended?

(iv) How do you prevent a method from being overridden?

(b) What is a checked exception, and what is an unchecked exception? What is the keyword **throw** used for? 2+1½=3½



( Continued )



4. (a) What are *autoboxing* and *autounboxing*? List two instances where *autoboxing* or *autounboxing* may occur automatically. 2+1½=3½

(b) Differentiate between abstract classes and interfaces with appropriate examples. Can a reference to an interface say *A* access objects of classes that implements the interface *A*? 3+1=4

UNIT—III

5. (a) What is the motivation behind generics? Explain with an example the use of the *wildcard* argument in generics. 1+2½=3½

(b) Explain how files are read and written using **FileInputStream** and **FileOutputStream** in Java. 2+2=4

6. (a) Discuss any two string constructors and any two string methods with examples. 2+2=4

(b) Design a generic *stack* class and test the class with a stack of integer objects. 3½

UNIT—IV

7. What is an applet? Discuss the applet architecture and explain ***init()***, ***start()***, ***stop()***, ***destroy()*** and ***paint()*** methods that are usually present in an applet. 1+2+4½=7½



( Turn Over )

8. What are adapter classes? How can an applet track mouse clicked events using the **MouseAdapter** class? Explain with the help of programs. 1+3+3½=7½

UNIT—V

9. *(a)* What is JDBC? How do you create a **Statement** and execute an SQL statement? 1+3=4

*(b)* What is servlet? Explain the life cycle of a servlet. 1+2½=3½

10. *(a)* Answer the following with respect to TCP/IP : 2+1+1+2=6

*(i)* What are the differences between server socket and client socket?

*(ii)* How does a client program initiate a connection?

*(iii)* How does a server accept a connection?

*(iv)* How are data transferred between a client and a server?

*(b)* What is the usage of JDBC DriverManager class? 1½

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