A 1515

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Second Semester

Information Technology

IF 144 – OBJECT ORIENTED PROGRAMMING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate enumeration and union.

2. Quote the differences between member functions declared as const and volatile.

3. What is the purpose of the malloc and free operators?

4. State the mechanism of passing objects to a function.

5. What is independent reference?

6. What makes a virtual function capable of supporting runtime polymorphism?

7. Is it necessary to use the implements keyword, if the parent class already implements an interface? Comment.

8. Discuss the difference between

   str = str + word;

   and

   tempStringBuffer.append(word);

   where str is a String object and tempStringBuffer is a StringBuffer object.

9. If an applet is declared as

   Public class MyApplet extends Applet implements ActionListener

   { ..... }

   which public method must be added to this applet?

10. What is the main difference between C++ and Java with regard to exception handling?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is object oriented programming? Discuss the various features of OOP. (10)

(ii) Design a C++ function menu( ) that displays a menu for a spelling-checker program using switch-case. (6)

Or

(b) (i) What does main( ) return?

(ii) What do you know about multiple inheritance?

(iii) Illustrate the concept of default arguments.

(iv) How do you pass arrays as arguments to functions? (4 × 4)

12. (a) (i) Write a C++ program to overload the unary operators using friend functions. (8)

(ii) Is it possible to overload new and delete operators? Justify with illustration. (8)

Or

(b) Write a C++ program, by creating two classes where one is the friend of another, to convert various currencies into the required currency say Rupees. (16)

13. (a) Describe with illustrations the various types of inheritance. Also discuss the behavior of the classes that are derived using various accessing mode. (16)

Or

(b) Consider an asset tracking program that will track four types of assets : electronic appliances, automobiles, furniture and compact discs. What classes would you design for the program? Design an abstract class that is super, with 4 sub classes. (16)

14. (a) (i) Discuss the mechanism for organizing java classes into namespaces. (8)

(ii) Discuss the package access protection. (4)

(iii) How do you create JAR files? (4)

Or

(b) Discuss the following concepts : (4 × 4)

(i) Threads

(ii) Problems with multithreading

(iii) Synchronizing threads

(iv) Solution to Dining philosopher problem.

15. (a) A slugging percentage of a baseball player is computed by dividing the total bases of all hits by the total times at bat (single = 1 base, double = 2 bases, triple = 3 bases, and home run = 4 bases). Write an applet that computes the slugging percentage. The applet accepts five input values: number of singles, no. of doubles, number of triples, no. of home runs and number of times at bat. (16)

Or

(b) (i) Write a Java application that accepts a person's weight and displays the number of calories the person needs in one day. A person needs 19 calories per pound of body weight, so the formula expressed in Java would be calories = bodyweight * 19. (8)

(ii) Write a Java application using if statement to find the smallest number among an array of given integers without using the *min* method of the Math class. (8)