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Question Paper Code : 70386

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fourth Semester

Electrical and Electronic Engineering

CS 6456 — OBJECT ORIENTED PROGRAMMING

(Common to Electronics and Instrumentation Engineering, Instrumentation
and Control Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the advantages of object oriented programming over structured programming?
2. What is the advantage of an inline function?
3. Why do we need the preprocessor directive # include <iostream> in a C++ program?
4. What is data abstraction? Give example
5. What is an Iterator? List out the characteristics of an Iterator.
6. What do you mean by the term 'Generic Programming'?
7. Which operators could be overloaded only by friend function?
8. What is byte code?
9. What is the use of multithreading?
10. Distinguish between class and interface.

PART B — (5 × 13 = 65 marks)

11. (a) Outline the features of the object oriented programming paradigm. (13)

Or

- (b) Write a C++ program to store 'n' names in an array name, sort the names in alphabetic order and print the result. Use classes and member functions. (13)

12. (a) Develop a class Polynomial whose internal representation is a term consisting of a coefficient and an exponent. Develop a complete class containing proper constructor and destructor functions as well as set and get functions. Overload the addition and subtraction operator to add and subtract two polynomials and display the results. Overload the assignment operator to assign one polynomial to another using friend function. (13)

Or

- (b) (i) Develop an abstract Class Polygon from which Triangle and Rectangle are derived. Each Polygon should contain the function Area () to calculate the area of them, Invoke appropriate Area () function to calculate the area using pointer to base class and pointers to derived classes. (10)
- (ii) Create a 'Vector' named Student to add the names of the students in a class. Also display the contents of the vector after adding necessary elements. (3)

13. (a) What is a function template? Write a template function to sort arrays of float and int using bubble sort. (13)

Or

- (b) What is inheritance? Discuss the various types of inheritance that are available in C++ with neat diagram. (13)

14. (a) (i) Explain about Java features. (5)

- (ii) Write a Java program to find the sum of the following series. (8)

$$1 - 2 + 3 - 4 + \dots + n .$$

Or

- (b) (i) Discuss about benefits of abstract class. (3)

- (ii) Explain dynamic method dispatch with an example. (10)

15. (a) (i) How do you add an interface to a package? Explain with an example. (7)
- (ii) How exceptions are handled in Java? Explain the important methods used to handle exception. (6)

Or

- (b) (i) Explain multithreading with an example. (7)
- (ii) Explain any six methods available in the StringBuffer class. (6)

PART C — (1 × 15 = 15 marks)

16. (a) Explain about thread synchronization with an example.

Or

- (b) Write a Java program to create user defined exception.
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