UG/PG Even Semester Examination, 2025

COMPUTER SCIENCE

(4th Semester)

Course No.: MCSC-404

(Object Oriented Programming with C++)

Full Marks: 70

Pass Marks: 28

Time: 3 hours

The figures in the right margin indicate full marks for the question.
Answer any five questions selecting one from each unit.

UNIT-I

1. (a) Explain Object Oriented Programming paradigm with a neat diagram. How object oriented programming overcome the drawbacks of procedure oriented programming? Justify your answer with suitable example. 9

   (b) Explain what is polymorphism. How is it useful in OOP? 5

2. (a) What do you mean by class and object? Discuss with examples. 6

   (b) Explain Encapsulation and data abstraction. 5

   (c) What are the advantages and disadvantages of structured analysis? 3

UNIT-II

3. (a) Explain function overloading with a suitable example. 6

   (b) What is the difference between inline functions and normal functions. 3

   (c) Explain function templates with a suitable example. 5

4. (a) Explain the following with example 4+4+3+3=14

   (i) Encapsulation

   (ii) Destructors

   (iii) Inheritance

   (iv) Friend Function

UNIT-III

5. (a) Write a C++ Program to find the sum of the first n natural numbers. 6

   (b) Explain with suitable example how objects can be passed as arguments and also returned. 8

6. (a) What do you mean by constructor? Explain the different types of constructors in C++ with suitable example. 14

UNIT-IV

7. (a) Design three classes student, test and results, where result is inherited from test and test is inherited from student. Write possible functions to initialize the values. Also write a main function for execution by creating objects. 14

8. (a) What is the difference between pointer to constants and constant pointers? What do mean by pointer to pointer? When is it used? 6

   (b) What are the differences between inheriting and class with public, private and protected visibility mode? 4

   (c) How dynamic binding is achieved in C++. 4

UNIT-V

9. (a) Explain the steps involved in reading and writing a file in a C++ Program? 6

   (b) What are file pointers? Explain the get and put pointers with suitable example. 8

10. Explain the purpose of file streams in C++ (ifstream, ofstream). Provide examples for opening and reading from a text file and writing data to a text file. 14

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