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TBC–202/TBI–203

B. C. A./B. SC. (IT)
(SECOND SEMESTER)
MID SEMESTER
EXAMINATION, March, 2024

OBJECT ORIENTED PROGRAMMING USING C++

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Differentiate between procedural programming and object-oriented programming languages. (CO1/CO2)

OR

(b) Describe the dynamic memory allocation process in C++ using new and delete

operators. WACPP program to demonstrate the use of new and delete. (CO1/CO2)

2. (a) Explain the following : (CO1/CO2)

(i) Scope resolution operator with example

(ii) Reference variable with example

OR

(b) What is the difference between inline function and normal function ? WACPP for calculating the simple interest where principle and time are user-defined and rate is used as default argument. (CO1/CO2)

3. (a) Write short notes on the following :

(i) Namespace

(ii) Iostream

(iii) Cin, Cout

WACPP to swap two numbers using call by reference. (CO1/CO2)

OR

(b) Discuss the importance of polymorphism in object-oriented programming. WACPP program to demonstrate function overloading for calculating the circle, rectangle, and square area. (CO1/CO2)

4. (a) Explain the essential features of object-oriented programming with example of each. (CO1/CO2)

OR

(b) Define tokens, identifiers, variables, and constants in C++. Provide examples of each. Also discuss the built-in data types in C++. How are they categorized, and what are their respective uses ?(CO1/CO2)

5. (a) Differentiate between the following : (CO1/CO2)

(i) Class *vs.* Structure

(ii) C *vs.* C++

OR

(b) WACPP for a student record system using classes and objects. Each student record should contain the following data members :

(i) Student ID (an integer)

(ii) Name (a string)

(iii) Age (an integer)

(iv) Grade (a character)

The program should include the following functionalities :

(i) Allow the user to input information for multiple students.

(ii) Display the information of all the students entered.

(iii) Calculate and display the average age of the students.

(CO1/CO2)