

CBCS SCHEME

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17EC562

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022 Object Oriented Programming using C++

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define a pointer. How does it differ from reference variable? Explain with suitable example. (06 Marks)
- b. Write program in C++ to calculate factorial of a number received interactively from user. (08 Marks)
- c. Explain with suitable examples, the various ways of defining symbolic constants in C++. (06 Marks)

OR

- 2 a. With suitable examples, explain the various storage classes available in C++. (06 Marks)
- b. What is a variable? Mention the rules associated with declaration of variable giving suitable examples. (06 Marks)
- c. What are the various types of expressions in C++? Explain each in brief with suitable example. (08 Marks)

Module-2

- 3 a. Explain in brief the various ways of passing arguments to a function in C++. Use appropriate program segment to describe each method. (04 Marks)
- b. Develop a program in C++ using overloaded functions to calculate area of circle, rectangle and triangle. (08 Marks)
- c. Define a class and object, develop a program in C++ to define a class called CRectangle providing necessary data members and member functions. Program should have provision to accept the dimensions of rectangle from user, calculate area and perimeter of rectangle and display the relevant information. (08 Marks)

OR

- 4 a. Describe inline function with suitable example. List the different situations where inline functions cannot be used. (07 Marks)
- b. What is the static variable of a class? What is its significance? Explain the special characteristics of a static member variable. (07 Marks)
- c. Explain with suitable example, the concept of encapsulation and data hiding. (06 Marks)

Module-3

- 5 a. Differentiate between a constructor and destructor of a class. (05 Marks)
- b. What is a const object and a const member function? Explain in brief, the rules associated with their use. (05 Marks)
- c. Overload operators +, +=, ++ (post increment) and -- (pre decrement) for a class used to process complex numbers. (10 Marks)

OR

- 6 a. What is a copy constructor? When is it called? Explain with a suitable example. (08 Marks)
b. Develop a program in C++ to process strings. The program should define a class to represent string having length of characters and char pointer to represent actual string as its data members. Provide necessary overloaded constructors, destructor and overloaded +, =, >> (insertion) and << (extraction) operator functions. (12 Marks)

Module-4

- 7 a. With the help of suitable examples, explain any four forms of inheritance supported by C++. (12 Marks)
b. Differentiate between static and dynamic binding. (08 Marks)

OR

- 8 a. What is the significance of virtual functions? Explain in detail with help of suitable program segment. (07 Marks)
b. Explain the role of virtual base class. (06 Marks)
c. With the help of suitable program segment explain the order in which the base class and derived class constructors and destructors are invoked. (07 Marks)

Module-5

- 9 a. With the help of suitable examples explain the following i/o manipulators :
i) setw() ii) setprecision() iii) setfill() iv) setiosflags(). (08 Marks)
b. With the help of suitable program segment, explain the two ways of opening a file. What are the various modes in which a file can be opened? (12 Marks)

OR

- 10 a. What are various types of I/O formatting supported by C++? Explain any four ios class functions used for formatting output. (10 Marks)
b. What is the significance of file pointers? Explain in brief the functions of file stream classes that support file pointer operations. (10 Marks)

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