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Third Semester B.E. Degree Examination, Jan./Feb. 2021
Object Oriented Programming with C++

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART - A

- 1 a. What are the three traits supported by all OOP languages? Explain in brief. (06 Marks)
- b. What is a pointer? Explain with examples. The different operations applicable to pointers. (08 Marks)
- c. What is recursion? Write a recursive function to add two integers' m and n. (06 Marks)
- 2 a. What is the need for static data members and static member functions? Explain with suitable examples. (07 Marks)
- b. What are the two uses of the scope resolution operator? Explain. (08 Marks)
- c. Explain the general form of a C++ class with a suitable example. (05 Marks)
- 3 a. Write a note on copy constructors with an example. What are the situations when a copy constructor is invoked? Explain. (07 Marks)
- b. What is a friend function? How do you overload the ++ and -- operators using friend functions? Explain with a suitable program. (08 Marks)
- c. With a suitable example, explain array of objects. (05 Marks)
- 4 a. How private, public and protected members of a base class behave when they are inherited using public inheritance? Explain with suitable example. (10 Marks)
- b. How is multiple inheritances implemented in C++? Explain with a suitable example. (10 Marks)

PART - B

- 5 a. When are the base class and derived class constructors and destructors called? Explain. (10 Marks)
- b. How virtual base classes solve the ambiguity that is introduced when multiple base classes are inherited? Is there any other solution? Explain with suitable examples. (10 Marks)
- 6 a. What is a virtual function? How run-time polymorphism can be implemented using virtual functions? Demonstrate with an example. (10 Marks)
- b. What is the need for pure virtual functions and abstract classes? Explain. (06 Marks)
- c. Write a note on early and late binding. (04 Marks)
- 7 a. What are the built-in streams that are automatically opened when a C++ program is executed? Also list the wide character versions of the standard streams. (04 Marks)
- b. Explain the following member functions with an example : (06 Marks)
- i) width () ii) precision () iii) fill ().
- c. Explain the purpose of different format flags defined within ios-base, a base class for ios. (10 Marks)
- 8 a. Explain the keywords used in exception handling with an example program. (10 Marks)
- b. Which class of C++ STL supports dynamic arrays? Explain its template specification and the different constructors that it supports. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.