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10MCA22

Second Semester MCA Degree Examination, June/July 2013
Object Oriented Programming with C++

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. What is object oriented programming? Explain the basic concepts of the object oriented programming. **(10 Marks)**

b. Discuss function overloading and inline functions with rules and with example each. **(10 Marks)**

2 a. Define a class STUDENT with member functions to
i) Readname, reg_no and marks in 3 tests of a subject
ii) Calculate average of better 2 tests
iii) Print the data.
Write a program in C++ to accept data of 'N' students and to process the data. **(10 Marks)**

b. With example, discuss static data members and static member functions. **(10 Marks)**

3 a. Explain the concept of constructors, destructors and copy constructor, with examples. **(10 Marks)**

b. Explain the following with example :
i) Friend function
ii) Friend class. **(10 Marks)**

4 a. What are function templates? Explain the purpose of function templates. Write a function template to swap the contents of two reference variables and use this in main to swap two integer variables, two character variables and two floating point variables. **(10 Marks)**

b. Describe operator overloading. Why it is necessary? Explain the restrictions of overloading an operator, with an example. **(10 Marks)**

5 a. What is inheritance? Bring out the concept of various types of inheritance and importance of derived class, with example. **(10 Marks)**

b. Explain how the constructors and destructors are called in the multilevel inheritance. Demonstrate with a program. **(10 Marks)**

6 a. Write a C++ program to implement a stack using overloading functions in base and derived class. **(10 Marks)**

b. What is a virtual function? What are the rules that need to be kept in mind in deciding virtual functions? Demonstrate the usage, with examples. **(10 Marks)**

7 a. What are iostreams in C++? Give the stream class hierarchy. **(10 Marks)**

b. What is STL? List and explain the three types of containers in STL. **(10 Marks)**

8 Write a short notes on :
a. Recursive functions
b. Virtual base classes
c. File operations
d. Exception handling. **(20 Marks)**

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