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13MCA22

Second Semester MCA Degree Examination, June/July 2015
Object Oriented Programming Using C++

Time: 3 hrs. Max. Marks:100

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

1 a. What is object oriented programming? Explain the following terms with examples:
i) Objects ii) Inheritance iii) Polymorphism iv) Encapsulation **(10 Marks)**

b. What is procedure oriented programming? Explain problems with procedural programming. **(05 Marks)**

c. Explain inline function with an example. **(05 Marks)**

2 a. What are the advantages of using functions? Explain function prototyping and parameter passing mechanism with example. **(10 Marks)**

b. What is function overloading? Explain with an example. **(06 Marks)**

c. Discuss function templates. **(04 Marks)**

3 a. What is class? Explain the structure of a class with the help of an example. Differentiate between a class and a structure. **(10 Marks)**

b. What are constructors and destructors? Explain the different types of constructors with suitable example. **(10 Marks)**

4 a. What are friend functions? Why is it required? Explain with the help of a suitable example. **(08 Marks)**

b. Write a C++ program that defines a STUDENT class with USN, Name and Marks in 3 tests of a subject, declare an array of 10 STUDENT objects. Using appropriate functions, find the average of the two better marks for each student, print the USN, Name and the average marks of all the students. **(08 Marks)**

c. Discuss various class templates. **(04 Marks)**

5 a. What is inheritance? Explain different types of inheritance with suitable examples. **(12 Marks)**

b. What is the ambiguity that might arise in multiple inheritances? How to overcome this? **(05 Marks)**

c. What are the benefits of inheritance? **(03 Marks)**

6 a. What are virtual functions? With an example demonstrate the use of virtual functions. **(10 Marks)**

b. What are pure virtual function? Discuss its significance. **(06 Marks)**

c. What are the rules for operator overloading? **(04 Marks)**

7 a. Describe the use of the following manipulators:
i) setw ii) setfill iii) setprecision iv) setiosflags v) resetiosflags **(10 Marks)**

b. What are streams in C++? Discuss any four built-in streams that are automatically opened when a C++ program begins execution. **(10 Marks)**

8 a. What is exception handling? How are exceptions handled in C++? **(10 Marks)**

b. Write short notes on:
i) Nested classes ii) Standard Template Library (STL) **(10 Marks)**

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