Registration No. :

Total number of printed pages – 3

Third Semester Examination – 2012-13

C++ AND OBJECT ORIENTED PROGRAMMING

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any five from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions :   2×10

   (a) State the benefits of dynamic initialization of a variable. How is it different from static initialization ?

   (b) When is it required to use an inline function in place of normal function ?

   (c) What is static data member ? Mention its scope in a program. Can a normal function access it ?

   (d) Mention the conditions when it is required to declare a constant function.

   (e) Differentiate between constructor and member function of a class. Mention the access method for constructor and destructor.

   (f) Write the differences between abstract classes and virtual classes.

   (g) How can you use the concept of object slicing in a C++ program ?

   (h) Outline the main differences between function overloading and function template.

   (i) Write the importance of catch block during exception handling.

   (j) Mention the importance of Namespace.

2. (a) Write a program to count the number of vowels and words in a given input string. 5

   (b) Write a recursive function to calculate the greatest common divisor of two given numbers. 5

3. (a) Construct a student class having the following data members : 5

   Name, Roll_no, Total_Marks whose values are initialized to "XYZ", 1100, 90 respectively.

   (b) Explain how a derived class constructor can be used to initialize a base class. 5

4. (a) Write important characteristics of a virtual function. Explain with a suitable example, the ambiguity that can be handled by a virtual function. 5

   (b) State the different access specifiers associated with a class. Outline the roles of such access specifiers during inheritance. 5

5. (a) Write a program to overload the addition operator so that it can be used to concatenate two input strings. 5

   (b) Write a program to sort a dynamically allocated array that contains 10 integer numbers, in descending order. Use new operator for dynamic memory allocation of the array. 5

6. (a) Writes a program by using function template to check whether a given number is prime or not. 5

   (b) Write a program that creates a text file "Student.text" and then writes an input string to it. 5

7. (a) Categorise the different types of exception. Narrate with a suitable example how to handle an exception in C++. 5

   (b) What is basic difference between nesting of classes and inheritance. Write a program that implements the concept of nesting of classes. 5

8. Write short notes on any **two** of the following : 5×2

   (a) Namespaces

   (b) Input/Output operators

   (c) Generic class.

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