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10EC665

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Programming in C++

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1   a. Define preprocessor directives. State the purpose of following C++ preprocessor directives.
       (i) #include   (ii) #define   (iii) #ifndef   **(08 Marks)**
    b. What is dynamic memory allocation? Explain with code snippet for usage of 'new' and 'delete' operator for memory management in C++.   **(06 Marks)**
    c. Give comparison of object-oriented and procedure oriented programming languages.
       (06 Marks)

2   a. What is a variable? Mention the rules associated with declaration of variables, with examples.   **(08 Marks)**
    b. Define pointer. With suitable example highlight the difference between a pointer and a reference variable.   **(06 Marks)**
    c. What is enumerated data type? Explain.   **(06 Marks)**

3   a. List out the different operators used for relational, arithmetic and logical operations. Also give their precedence and associativity.   **(06 Marks)**
    b. Explain Bitwise operators and bitset operations in C++ with examples for each.   **(08 Marks)**
    c. Write a C++ program to find whether the given number is prime or not.   **(06 Marks)**

4   a. What is function prototype? Explain the call-by-value and call-by-reference parameter passing methods for swapping two variables containing integers.   **(10 Marks)**
    b. What is an inline function? Write the rules for inline function. Give an example for inline function.   **(06 Marks)**
    c. Write a recursive function to find factorial of 'n' numbers.   **(04 Marks)**

PART – B

5   a. What is exception handling? Explain the need for it and the different types of exceptions.
       (10 Marks)
    b. Mention the exceptions and design issues.   **(05 Marks)**
    c. Write a C++ program to test for a positive number using try and catch block.   **(05 Marks)**

6   a. Explain the constructor and destructor functions with examples.   **(08 Marks)**
    b. Write a C++ program to calculate the surface area and volume of a sphere using equations $4\pi r^2$ and $\frac{4}{3}\pi r^3$ where 'r' is radius of the sphere. Use class name as 'sphere' and object 'mysphere' and member functions as vol( ) and s-area( )   **(12 Marks)**

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7 a. Explain the purpose of operator overloading. Develop a C++ program to add two complex numbers by overloading the operator +.   **(10 Marks)**
   b. Explain the following with examples:
       (i) Overloading operators ++ and − −
       (ii) Overloading operators new and delete   **(10 Marks)**

8 a. What is inheritance? Explain public, private and protected inheritance, with an example.
                                                                                            (10 Marks)
   b. Explain single and multilevel inheritance with examples.   **(06 Marks)**
   c. Write a note on base class and derived class.   **(04 Marks)**

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