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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)**

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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