USN | | | | | | | | | | **10EC665**

Sixth Semester B.E. Degree Examination, June/July 2017
Programming in C++

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting at least TWO questions from each part.*

PART – A

1 a. What is preprocessor directive? Explain available preprocessor directives in C++ with necessary example. **(08 Marks)**
   b. What are the advantages of dynamic allocation of arrays? Explain dynamic allocation operators with example. **(06 Marks)**
   c. Define object oriented design. Explain, what are the basic features of object oriented design. **(06 Marks)**

2 a. Explain following operations:
      i) Constant   ii) Reference type   iii) Enumeration
      iv) Namespace   v) Typedef   vi) Conditional operator   **(12 Marks)**
   b. Justify with program how two strings initialized, concatenated, and find the length of the concatenated string. **(04 Marks)**
   c. Explain vector initialization operations. **(04 Marks)**

3 a. Explain basic bitwise operators of C++ with each example. **(06 Marks)**
   b. Explain execution operation of continue, break and goto statements. **(06 Marks)**
   c. Write a C++ program to sort the array of 'n' numbers in ascending order. **(08 Marks)**

4 a. With a programming example, explain the 'call-by-value' and 'call-by-reference' parameter passing methods to a function, define function prototype. **(08 Marks)**
   b. Write a C++ program to pass array of 10 integer numbers to the user defined function, to find the largest of the array and return to the calling program, and display the largest value in main( ). **(06 Marks)**
   c. Define inline function. With example, explain inline function. What are its limitations? **(06 Marks)**

PART – B

5 a. Define exception. What are the advantages of exception? Explain try, catch, throw exception handling mechanism. **(08 Marks)**
   b. Explain C++ exception features available, catch all, terminate, unexpected. **(12 Marks)**

6 a. Create a class with STUDENT, declare data members as: student name, USN, department, semester, six subject marks. Declare member functions to read( ) and display( ). Calculate the percentage of a student using percent( ). According to percentage assign class to a student using result( ), with following condition, if percentage is
      i)   Above 70% - FCD
      ii) Between 60% to 69% - FC
      iii) Between 50% to 59% - SC
      iv) Below 50% - FAIL
      in main program. Make this record for 10 students. **(12 Marks)**
   b. Explain with example function overloading for constructor operation. **(08 Marks)**

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7   a. What is operator overloading? Give general syntax of operator overloading.   **(04 Marks)**
    b. In C++, justify with programming example how prefix and postfix increment operator overloading distinguished.   **(06 Marks)**
    c. Write a C++ program to illustrate how the binary '+' operator overloaded for addition of two complex numbers using friend function operator overloading.   **(10 Marks)**

8   a. Define virtual member. Explain virtual function access with derived class.   **(06 Marks)**
    b. Explain multiple inheritance with constructor and destructor operation executed with example.   **(06 Marks)**
    c. Explain with example private, public, protected base class inheritance operation for atleast one level.   **(08 Marks)**

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