

Code No: I3502/R16

M. Tech. I Semester Regular Examinations, December-2016

**C++ AND DATA STRUCTURES****Computer Aided Structural Engineering (35)****Time: 3 Hours****Max. Marks: 60**


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*Answer any FIVE Questions*  
*All Questions Carry Equal Marks*

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1. a How are the object oriented programming concepts superior than procedure oriented programming? Explain with an example. 6M  
b List at least four new operators added by C++ which aid OOP and explain the application of the scope resolution operator (::) in C++. 6M
2. a How are data types in C++ classified? Describe the standard data types and their type conversion? 6M  
b What are the rules associated with constructor and destructor functions in a class? Illustrate with example the various ways of defining them. 6M
3. a Write a program to sort the following numbers using insertion sort 6M  
45,32,11,46,27,56,12,76,5,31,28.  
b Explain different types of parameter passing methods. 6M
4. a Write a program to implement Single linked list and explain its operations. 6M  
b Explain Circular Double Linked List with an example. 6M
5. a Write the advantages and disadvantages of double linked list. 6M  
b What is FIFO? How to represent a Stack? Explain. 6M
6. a Discuss the evaluation of following postfix notation of expression. Show the status of stack after execution of each operation: 6M  
32, 4, /, 2, \*, 12, 3, -, +  
b Explain the queue implementation using arrays. 6M
7. a Explain the implementation of operations on Binary trees. 6M  
b What is complete binary tree? Write the applications of Binary trees. 6M
8. a What is the best way to represent binary trees in memory? Illustrate with an example. 6M  
b Explain various types of Binary Trees. 6M

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