Reg. No.

Question Paper Code : 57280

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Third Semester

Electronics and Communication Engineering

EC 6301 -- OBJECT ORIENTED PROGRAMMING AND DATA STRUCTURES

(Common to Biomedical Engineering and also common to Fourth Semester
Medical Electronics. Robotics and Automation Engineering)

(Regulations 2013)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Define constructor. List the type of constructor ?

2. List the operator that cannot be overloaded.

3. Write a simple C++ program to demonstrate the virtual functions.

4. State about cast operator.

5. Convert the infix expression $a + b*c + (d*e + f)*g$ into postfix.

6. Define sentinel nodes, header node and tail node.

7. Draw expression tree for $(a + b * c) + ((d * e + f) * g)$

8. What do you mean by articulation points ?

9. List the advantages of quick sort.
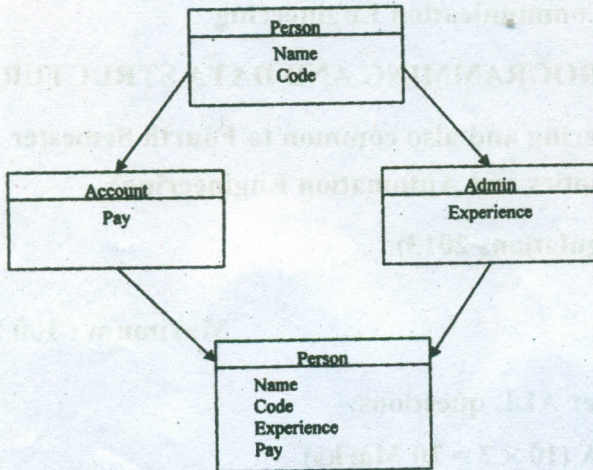
10. Which search is faster and Why ?

PART – B (5 × 16 = 80 Marks)

11. (a) Discuss about function overloading with varying number of arguments and data types. **(16)**

OR

(b) (i) List the characteristics of friend function. **(4)**

(ii) Write short notes on destructor. **(4)**

(iii) Explain in detail about static class member with employee class program. **(8)**

12. (a)

Consider the class network of above figure. The class **master** derives information from both account and admin classes which in turn derive information from the class **person**. Define all the four classes and write a program to create, update and display the information contained in **master** objects. **(16)**

OR

(b) Explain the polymorphism with example **(16)**

13. (a) (i) Write the ADT operation for insertion and deletion routine in stack. **(8)**

(ii) Explain the process of conversion from infix expression to postfix using stack. **(8)**

OR

(b) Discuss about addition of two polynomials using linked list with necessary ADT. **(16)**

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14. (a) Draw the binary search tree for the following input list 25, 45, 12, 60,75,92.10. Trace an algorithm to delete the nodes 25, 75, 10 from the tree. **(16)**

<div align="center">OR</div>

(b) Discuss types of graph traversal and explain each with suitable examples. **(16)**

15. (a) (i) Write a c^{++} program to implement quick sort. **(8)**

(ii) Sort the sequence 4,7,2,0,-8,5 using Insertion sort. **(8)**

<div align="center">**OR**</div>

(b) Explain the binary search with sample program. **(16)**

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