B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009

Third Semester

Electronics and Communication Engineering

EC 2202 — DATA STRUCTURES AND OBJECT ORIENTED

PROGRAMMING IN C++

(Regulation 2008)

Time : Three hours Maximum : 100 Marks

Answer ALL Questions

PART A — (10 × 2 = 20 Marks)

1. When do we declare a member of a class static?

2. Why is it necessary to overload an operator?

3. What is an abstract class?

4. What does 'this' pointer point to?

5. What is deque?

6. What is a heap and mention its types?

7. What is AVL tree?

8. When does a graph become tree?

9. What is the worst case and best case time complexity of binary tree sort?

10. What is indexed sequential search?

PART B — (5 × 16 = 80 Marks)

11. (a) (i) What is a friend function? What are the merits and demerits of using friend function? (8)

(ii) Define a class 'string'. Use overload '= =' operator to compare two strings. (8)

Or

(b) (i) What is a parameterized constructor? Explain with example. (8)

(ii) What is a conversion function? How is it created? Explain its syntax. (8)

12. (a) (i) Describe the syntax of multiple inheritance. When do we use such an inheritance? (10)

(ii) What is a virtual function? When do we make a virtual function ''pure''? (6)

Or

(b) (i) What is a file mode? Describe the various file mode options available. (8)

(ii) What is an exception? How is an exception handled in C++? (8)

13. (a) Define double linked list. Explain the various operations of double linked list with algorithm. (16)

Or

(b) (i) What is hashing? Explain the various hash functions with example. (10)

(ii) What is priority queue? Discuss the array implementation of priority queue. (6)

14. (a) Discuss the different methods of traversing a binary tree with algorithm. (16)

Or

(b) Discuss Prim's and Kruskal's algorithm for computing the minimal spanning tree weighted undirected graph. (16)

15. (a) (i) Write a 'C' program to implement binary search and compute its complexity. (8)

(ii) Compare the worst case and best case time complexity of various sorting techniques. (8)

Or

(b) Explain the all pairs shortest path algorithm with an example. (16)