Roll No. ..... **Total Pages : 03**

BT-7/M-20 37182

ADVANCE PROGRAMMING

EEN-405N

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the concept of array of pointers. How are arrays related to pointers ? **7½**

(b) Explain the difference between a circular linked list and a singly linked list. Why is a doubly linked list more useful than a singly linked list ? **7½**

2. (a) Explain the concept of a circular queue ? How is it better than a linear queue ? **7½**

(b) What is a priority queue ? Give its applications. Why do we use multiple queues ? **7½**

Unit II

3. (a) How the performance of the linear search can be improved ? What is the complexity of linear search ? **7½**

(b) Which technique of searching an element in an array would you prefer to use and in which situation ? **7½**

4. (a) What is the importance of searching. What are the different types of searching ? **7½**

(b) Compare the running time complexity of different searching algorithms. **7½**

Unit III

5. (a) Write an algorithm to sort an array of names using bubble sort. **7½**

(b) Write an algorithm to sort the numbers based on individual digits. **7½**

6. (a) What is radix sort ? Illustrate with a suitable example. **7½**

(b) Compare the running time complexity of different sorting algorithms. **7½**

Unit IV

7. (a) What is the concept of object oriented programming ? Write any simple program using C++. **7½**

(b) What are the abstract data types in C++ programming language ? Explain. **7½**

8. (a) What do you mean by inheritance ? Explain various types of inheritance in object oriented programming. **7½**

(b) What is Polymorphism ? What is the use of polymorphism in object oriented programming ? **7½**