Roll No. ....   **Total Pages : 02**

BT-7/M-20   **37200**
ADVANCED PROGRAMMING
EE-409N

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. Use programming example where needed. Marks will be deducted in the absence of programming example.

Unit I

1. (a) Define data structure. Discuss different types of array with example.   **7**

    (b) Define elementary data structure. Explain different types of link list with example.   **8**

2. (a) List different header files used in C language. Discuss the role of any *five* header file with example.
                                                                7

    (b) Differentiate De-queue and Priority queue and Circular queue.   **8**

Unit II

3. (a) Differentiate Binary and Indexed search with example.   **8**

 (b)   Define heap. Write algorithm for creating max-heap.

7

4.   Write algorithm and time complexities for different cases for the following sorting method with suitable example :

 (i)   Radix Sort   (ii)   Quick Sort. **2×7½=15**

Unit III

5.   (a)   List different types of classes used in C++. Explain any *three* classes with example. **8**

    (b)   Differentiate encapsulation and abstraction. Give suitable example. **7**

6.   (a)   Discuss various object modeling techniques used in C++. **7**

    (b)   Show, with example, how the classes and object are associated in C++. **8**

Unit IV

7.   (a)   Differentiate function overloading and operator overloading with example. **8**

    (b)   Discuss polymorphism at compile time and run time.

7

8.   (a)   Explain parameterized constructor with example. **8**

    (b)   Discuss the role of Access modifier in C++. **7**