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

37200

BT-7/M-20

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* 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 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**