Exam. Code : 105703
Subject Code : 1461

B.Sc. Information Technology 3rd Semester
DATA STRUCTURE
Paper—II

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Attempt *five* questions in all. All questions carry equal marks.

1. (a) What is data-structure ? Explain some common operations. 8

   (b) What is algorithm complexity ? How is it measured ? Explain. 7

2. (a) Differentiate between single and multidimensional arrays through their operations and implementation. 8

   (b) How linked lists are represented in memory ? What are the various advantages of using linked lists over arrays ? 7

3. (a) Explain various types of linked lists with examples. 8

   (b) Write a pseudo code to insert and delete a node in a linked list. 7

4. (a) How stacks are implemented using arrays and linked lists ? Explain. 8

   (b) Write a procedure and demonstrate it through example to convert infix to Polish notation and solving it. 7

512(2118)/DAG-6579 1 (Contd.)

5. (a) What is queue structure ? Also describe "priorities of queues" and "dequeues" with examples.

2+3+3

(b) What is Tree ? How are they represented ? Explain various operations on them. 7

6. (a) What are Binary Trees and Binary Search Trees ? Explain their memory representation with examples. 4+4

(b) Define graph structure. Explain various ways to represent them in memory. 7

7. (a) What is sorting ? Explain the way to sort a list through bubble sort. 2+6

(b) Explain quick sort technique to sort an array.

7

8. Write notes on (with examples) :

(a) Binary Searching

(b) Time-space Trade off. 7.5×2=15