[05 – 3212]

III/IV B.E. DEGREE EXAMINATION.

Second Semester

Electronics and Communication Engineering

DATA STRUCTURES

(Effective from the admitted batch of 2006–2007)

Time : Three hours Maximum : 70 marks

Question No. 1 is compulsory.

Answer any FOUR from Q.No. 2 to 8.

1. (a) Define function.

(b) Write a C program to find GCD of two numbers.

(c) Preprocessor directives in C.

(d) Basic file operations.

(e) Define recursion. Give an example.

2. (a) Explain memory allocation and access mechanism for two dimensional arrays with an example.

(b) Write a C program to store the following data :

25 30 65
54 94 51
52 79 31
34 84 61
72 67 14

3. (a) Define Structure and Union data type. Explain memory allocation of both data types with example.

(b) Define pointer with an example. Explain advantages of pointers.

4. Write a C program to implement stack operations like PUSH, POP, and DELETE.

5. (a) Explain the application of queue.

(b) Explain various tree traversal techniques.

6. (a) Explain circular linked list representation with example. Mention the advantages of it.

(b) Explain the following operation for a single linked list :

(i) inserting a element at the end.

(ii) deletion of middle element.

7. (a) Write Prim's algorithm to find the minimal spanning tree and estimates its time complexity.

(b) Write Kruskal's algorithm and explain.

8. (a) Convert a tree into its equivalent binary tree.

(b) Represent a graph as linked list and write its adjacency matrix.

———— [2537/1/I/12]