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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

Electronics and Communication Engineering

EC 243 — PROGRAMMING AND DATA STRUCTURES

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Define a pseudo code.
2. What do you mean by modularity?
3. What is the concept behind divide and conquer algorithm?
4. Write the disadvantages of recursion.
5. Write the features of pointers.
6. Define an array and give the types of arrays.
7. What are the basic operations of stack?
8. Define a circular queue.
9. What is sorting? List the different types of sorting techniques.
10. Define a weighted graph with an example.

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) Explain the structure of C program. (6)

(ii) What is a function? What are the ways of passing parameters to a function explain with example. (10)

Or

(b) (i) Discuss the basic concepts involved in structured programming. (8)

(ii) Describe the types of program development styles and explain it. (8)

12. (a) (i) Describe the notations used to characterize the complexity of an algorithm. (8)

(ii) Explain the brute force algorithm with an example. (8)

Or

(b) (i) Explain in detail about the greedy algorithm with an example. (10)

(ii) Write short notes on back tracking. (6)

13. (a) (i) Explain about various derived data types with examples. (8)

(ii) Write a C program to perform the multiplications of two matrices. (8)

Or

(b) (i) Explain enumerated data types with examples. (6)

(ii) Write a program to read a 'c' program file and count the total no of statements and total number of blocks and brackets. (10)

14. (a) (i) Write an algorithm to insert and delete the element from the double linked list. (8)

(ii) What are the applications of stacks? Explain briefly. (8)

Or

(b) (i) Explain how insertion and deletion operations are done with a binary search tree. (10)

(ii) Explain different types of tree traversal with an example. (6)

15. (a) (i) Write an algorithm to search an element using linear and binary search method. (10)

(ii) How will you sort a list of elements using bubble sort? Explain with example. (6)

Or

(b) (i) Describe in detail about indexed sequential files. (10)

(ii) Draw the flow chart of depth first graph traversal algorithm. (6)