Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

B 2154

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

Electronics and Communication Engineering

EC 243 — PROGRAMMING AND DATA STRUCTURES

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is top down design?

2. Write the advantages of Pseudocode.

3. Explain the Brute Force Algorithm briefly.

4. Write a recursive algorithm to find the factorial of a number.

5. Write the data types provided in C language.

6. Write a program in C language to find whether a given number is odd or even.

7. State the applications of stack.

8. What is a circular queue?

9. Sort the following numbers using the bubble sort algorithm.

    8, 2, 7, 1, 4, 5, 6, 3, 9, 12, 10.

10. Distinguish between searching and sorting.

PART B — (5 × 16 = 80 marks)

11. (a) Compare procedures and functions with suitable examples.

Or

(b) (i) Explain the structured programming concepts. (8)

(ii) Distinguish between the parameter passing techniques "call by value" and "call by reference". (8)

12. (a) (i) How will you analyse an algorithm? (8)

(ii) Explain the 'Divide and conquer technique' using a suitable algorithm. (8)

Or

(b) What is a greedy algorithm? Give an example and explain it.

13. (a) (i) State and explain the control structures provided in C language. (8)

(ii) How will you handle arrays in C? (8)

Or

(b) Explain the method of creating and displaying the modes of a single linked list. Provide the algorithms for insertion and deletion.

14. (a) Explain the operations in stack and queues.

Or

(b) How will you create and traverse a tree? Give examples.

15. (a) (i) State and explain the insertion sort algorithm. (8)

(ii) Compare sequential files with indexed files. (8)

Or

(b) Explain the graph representation techniques.

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