

Code: R5100106

R05

B. Tech I Year (R05) Supplementary Examinations, May 2012
C PROGRAMMING & DATA STRUCTURES
(Common to CE, EEE, ECE, CSE, EIE, BME, IT, E.Con.E, ECC & CSS)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What is an algorithm? Write an algorithm to find the sum of n natural numbers.
(b) Describe the five arithmetic operators in C. Summarize the rules associated with their use.
- 2 (a) Write a 'C' program to reverse a string.
(b) What is the purpose of the keyword 'Void' in a function declaration and in a function definition?
(c) What is recursion? What advantages is there in its use?
- 3 (a) Illustrate the difference between ordinary arguments, which are passed by value, and pointer arguments, which are passed by reference.
(b) Explain the purpose of each of the following declarations:
(i) float (* x) (int * a)
(ii) float x (int * a [])
(iii) double (*a) [12]
(iv) char * a [12]
- 4 (a) Distinguish between a structure and a union.
(b) With a simple C program illustrate how an array of structures is passed in a function, and how a pointer to a particular structure is returned.
- 5 Write the syntax of the following functions and explain:
(i) fopen (ii) fclose (iii) fscanf (iv) fprintf (v) feof (vi) fread (vii) fwrite (viii) fputs.
- 6 Write a C program to implement stacks using arrays.
- 7 (a) How doubly linked list differ from singly linked list? What are its advantages?
(b) Explain binary tree traversal techniques in detail.
- 8 (a) Differentiate between linear and binary search methods.
(b) Explain insertion sort with an examples.
