

PROGRAMMING IN C & DATA STRUCTURES

(Common to CE, ME, EEE, ECE, EIE & IT)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What are the various basic data types in C?
 - Write the syntax for conditional operator.
 - Differentiate between putchar () and puts ().
 - Describe the steps in writing a function in a C program.
 - List the four storage classes in C.
 - How do you declare a two dimensional array? Give its memory representation.
 - Compare structures and unions.
 - What are the uses of Pointers?
 - What is a data structure? Give examples.
 - Define circular queue.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 Discuss the steps in top down design strategy in detail.
- (OR)
- 3 (a) Design an algorithm to compute n factorial (n!) where $n \geq 0$.
(b) Explain the structure of a C program with example.

UNIT - II

- 4 (a) Describe the purpose of break and continue statements in C.
(b) What is recursion? Explain with example. Also give the advantages and disadvantages.

(OR)

- 5 List and explain loop control statements in C.

UNIT - III

- 6 (a) Write a C program to find the kth smallest in the given array.
(b) Discuss any five string handling functions.

(OR)

- 7 Write quick sort algorithm. Illustrate with example.

UNIT - IV

- 8 (a) Discuss passing pointer to a function with example.
(b) Describe dynamic memory allocation functions.

(OR)

- 9 (a) Explain the following file handling functions:
(i) fopen (). (ii) fseek (). (iii) fclose.
(b) What is command line argument? Explain with example.

UNIT - V

- 10 (a) Write an algorithm for infix to postfix conversion.
(b) Explain the implementation of queues using linked lists.
- (OR)
- 11 (a) Describe operation on a stack with examples.
(b) Give the step wise procedure for performing insertion operation on singly linked list with example.
