Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[4957]-1084

S.E. (Information Technology) (First Semester)

EXAMINATION, 2016

FUNDAMENTALS OF DATA STRUCTURES

(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Answer Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6**, Q. No. **7** *or* Q. No. **8**.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right indicate full marks.

(*iv*) Assume suitable data, if necessary.

1. (*a*) Explain various operators in C. [6]

(*b*) Write a pseudo code to reverse a string without using library function. [4]

(*c*) What is the purpose of enumeration type ? [2]

Or

2. (*a*) Describe the following declarations : [4]

(*i*) int*p[10]

(*ii*) int**q

(*iii*) int(*q)[5]

(*iv*) char s[50][50][50]

P.T.O.

(*b*) What is pointer ? Explain pointer to a function. [4]

(*c*) Write a C program for copying the contents of one file into another. [4]

3. (*a*) What are different asymptotic notations ? [3]

(*b*) Explain static and dynamic data structures with sutiable examples. [3]

(*c*) Show the output of each pass using selection sort to arrange following numbers is ascending order : [6]

15, 13, 100, 20, 72, 35, 65, 5, 99, 67.

Or

4. (*a*) Explain linear and binary search techniques with examples. [4]

(*b*) Write pseudo C algorithm for quick sort. [6]

(*c*) What is sort stability and efficiency ? [2]

5. (*a*) Write pseudo C algorithm for addition of two sparse matrices. [5]

(*b*) Write pseudo C algorithm for simple transpose of sparse matrix. [4]

(*c*) Represent the following polynomials using arrays : [4]

(*i*) $7x \text{ ^ } 3 - 10xy + y \text{ ^ } 2 - 90$

(*ii*) $x \text{ ^ } 4 + 47x + 50.$

Or

6. (*a*) Write pseudo C algorithm for fast transpose of sparse matrix. [5]

(*b*) Write a C code for stack as an ADT. [4]

(*c*) What are applications of stack ? [4]

7. (*a*) Write a C code for inserting a node at start and at end in SLL. [6]

(*b*) List the applications of circular lists. [5]

(*c*) What is the difference between malloc( ) and calloc( ). [2]

Or

8. (*a*) Explain GLL. Represent the following polynomial using GLL. [6]

(L, (M, (N), (O, P)), Q), R, (S, T), (A, (B, C)).

(*b*) Write a pseudo code to reverse SLL by changing link pointers. [7]