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

Seat No.	

[5459]-204

S.E. (I.T.) (I Sem.) EXAMINATION, 2018

FUNDAMENTALS OF DATA STRUCTURES

(2015 PATTERN)

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

N.B. **:—** (*i*) Answer *four* questions in all.

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

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

(*iv*) Use of calculator is allowed.

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

1. (*a*) Explain dynamic memory allocation functions in C. [4]

(*b*) Explain the following with example : [6]

(1) Pointer to array

(2) Pointer to pointer

(3) Array to pointer.

(*c*) List and explain the fundamental types in C. [2]

Or

2. (*a*) Explain memory allocation, declaration, access and initialization of structure variable with suitable example. [4]

P.T.O.

(*b*) What is stream ? State the type of stream used in C File handling. [4]

(*c*) Explain the ways of parameter passing in C functions. [4]

3. (*a*) What is Complexity of Algorithm ? Explain the importance of algorithm analysis. [4]

(*b*) Write Pseudo C code of binary search algorithm. [6]

(*c*) Define the following : [2]

(1) Data Object

(2) Data Structure.

Or

4. (*a*) Write C program to implement Quick Sort and show all passes to sort the following list using quick sort : [6]

55 85 0 25 40 35 20

(*b*) Explain different asymptotic notations. [6]

5. (*a*) Explain the features of sequential organization in comparison with linked organization. [6]

(*b*) Write Pseudo C code for Sparse matrix simple transpose. [7]

Or

6. (*a*) What do you mean by ordered list ? Explain Sparse matrix as an example of ordered list. [7]

(*b*) Explain representation of polynomial using array and structure with an example. [6]

7. (*a*) Explain the following : [6]

(1) Doubly linked list

(2) Self-referential structure.

(*b*) Write Pseudo C code for inserting and deleting node of a circular linked list. [7]

Or

8. (*a*) Explain GLL and represent the following polynomials using GLL : [7]

13 x^4 + 5x^3 – 12xy + 9xy^3 – 20x^2y^4

(*b*) Write C code to evaluate a polynomial term. [6]