

Total No. of Questions : 4]

SEAT No. :

P-5403

[Total No. of Pages : 2

[6186]-529

S.E. (Information Technology) (Insem.)
DATA STRUCTURES AND ALGORITHMS
(2019 Pattern) (Semester - III) (214443)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) *Answers Q.1 or Q.2 and Q.3 or Q.4.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) a) Define the following terms with example [5]

- i) Data
- ii) Data Object
- iii) Data Type
- iv) Data Structure

b) Explain with example [5]

- i) Static and dynamic data structure.
- ii) Linear and nonlinear data structure.

c) What is array? Explains different types of array with example? [5]

OR

Q2) a) Calculate row major and column major address of a[1][2] for a[m][n]=a[2][3], where base address = 102. (Each element size is 2). [5]

b) What is time complexity? How is the time complexity of an algorithm computed? [5]

c) Explain Linked Organization. Write advantages and disadvantages of linked organization? [5]

P.T.O.

- Q3)** a) Write short note on searching and sorting? [5]
b) Explain Linear search and binary search with example? [5]
c) Sort following list using bubble sort, show the output of each pass.
10, 5, 4, 18, 17, 1, 2. [5]

OR

- Q4)** a) Explain with example sort stability, efficiency and passes? [5]
b) Consider following numbers and sort them using quick sort. [5]
25, 57, 48, 37, 12, 92, 86, 33
c) Sort the data using merge sort. Show all passes 10,5, 7, 6, 1, 4, 8, 3,2, 9.[5]

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