

Total No. of Questions : 4]

SEAT No. :

PA-21

[Total No. of Pages : 2

[59311]-31

S.E. (Electronics & Computer/Artificial Intelligence & Data Science)

FUNDAMENTALS OF DATA STRUCTURES

(2019 Pattern) (Semester - I) (210242)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

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

Q1) a) Define the following terms with suitable example. [4]

- i) Data Structure
 - ii) Abstract Data Type
 - iii) Algorithm
 - iv) Flowchart
- b) What is frequency count? Why is frequency count important in the analysis of algorithm. [5]
- c) Write an algorithm to compute the sum of the digits of the given number. Justify that your algorithm satisfies all the characteristics of an algorithm. [6]

OR

Q2) a) Give complete classification of data structures with one example of each. [4]

- b) Explain divide & conquer Strategy and Greedy strategy with suitable example. [5]
- c) Draw flowchart to check whether a given number is a perfect square of an integer. What is the time complexity of your algorithm. [6]

P.T.O.

- Q3)** a) What are advantages & disadvantages of sequential organization of data structure? [4]
- b) Explain row major & column major representation of arrays in computer memory. [5]
- c) Write an algorithm to perform polynomial addition state the time complexity of the algorithm. [6]

OR

- Q4)** a) Write a short note on storage representation of an array [4]
- b) Write pseudo code to reverse the in numbers in one dimensional array. [5]
- c) Write an algorithm to perform sparse matrix addition & state its time complexity. [6]

