Total No. of Questions – [4]

Total No. of Printed Pages: 01

U218 -124 (T1)

G.R. No.	

OCTOBER 2018/IN-SEM (T1)

S. Y. B. TECH. (COMPUTER ENGINEERING) (SEMESTER - I)

COURSE NAME: FUNDAMENTALS OF DATA STRUCTURE

COURSE CODE: CSUA21174

(PATTERN 2017)

Time: [**1Hour**] [Max. Marks: **30**]

Instructions to candidates:

1) **Answer Q.1 OR Q.2 and Q.3 OR Q.4.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data whereever required**

Q.1) a) Explain static and dynamic data structure with suitable example. [6]

b) What is Abstract data type? Explain an ADT for Natural Number. [6]

c) Explain Big-O notation with suitable example. [4]

OR

Q.2) a) Explain asymptotic notations. [6]

b) Describe the following statements. i) int a, *b=&a ii) int p, *p iii) a= (float*) &x iv) int **q v) char *s vi) int (*p)++ [6]

c) What is recursion? Explain with suitable example? [4]

Q.3) a) Explain sparse matrix with suitable example? Write an algorithm for Simple Transpose of sparse matrix [6]

b) Derive a formula to access an element in the i^{th} row and j^{th} column of a matrix stored in row major form. Explain with example. [4]

c) Write C++ function to reverse a string using pointers. [4]

OR

Q.4) a) Explain representation of polynomial using array with suitable example. [6]

b) Write C++ code for concatenation of two strings without using library functions [4]

c) Compare Array & Ordered list. Write two examples of ordered list. [4]