Total No. of Questions – [03] Total No. of Printed Pages: 01

G.R. No.	

Paper code :- U239-145 (T1)

OCTOBER 2019 / INSEM (T1)
S. Y. B.TECH. (INFORMATION TECHNOLOGY) (SEMESTER – III)
COURSE NAME: FUNDAMENTALS OF DATA STRUCTURES
COURSE CODE: ITUA21185
(PATTERN 2018)

Time: [1 Hour] [Max. Marks: 20]

(*) Instructions to candidates:
1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed.
4) Write suitable examples wherever necessary.
5) Draw suitable diagrams if required.

Q-1 Attempt any **one**

a) Write a pseudo C routine for concatenation of two strings using pointers. Write example of concatenation. Explain the advantages of pointers with suitable example. [8]

b) Write a C program to copy contents of file in another file. Explain function pointer with suitable example. [8]

Q-2 Attempt any **one**

a) Define Abstract data type. Write uses of ADT. Write an ADT for a Matrix. [8]
Find the total frequency count and time complexity of following:

```
for send=1 to n do
    for receive =1 to send do

        for ack=2 to receive do
            message=send-(receive+ack)
            ack=ack-1
            send=send+1
        end
    end
end
```

b) Explain Big-oh notation with example. [8]
Differentiate between:
i) Static and dynamic data structures
ii) Linear and non-linear data structures

Q 3) Attempt any **one**.

a) Write pseudo-C code for Binary Search and analyze its time complexity. [4]

b) Show all passes to sort the values in descending order using insertion sort. [4]
56, 12, 54, 28, -13, 47, 94, -2.