S. NO: 196 BATCH: 2011 - 2016 Reg. No.:

END OF SEMESTER EXAMINATIONS, APRIL / MAY – 2018

DATA STRUCTURES AND ALGORITHMS

SUBJECT CODE : 11UACA19/16UACT05

MAJOR : B.C.A / B.Sc.CT SEMESTER : III

TIME : 3 HOURS 6 MAX. MARKS: 75

SECTION – A (5 X 2 = 10)

Answer ALL Questions:

1. What is an algorithm?
2. Define linked list.
3. Convert the infix expression into postfix.

$$A*(B+C)/D$$

4. When do you say a graph is complete?
5. Write the two techniques to minimize clustering.

SECTION – B (5 X 4 = 20)

Answer ALL Questions:

6. a) Explain the operations of data structure.

[OR]

b) Describe about the complexity of algorithms.

7. a) Give the advantage of list over arrays.

[OR]

b) How do you represent linked list in memory.

8. a) Write the PUSH and POP operations of STACK.

[OR]

b) Write the procedure to evaluate postfix expression.

9. a) Write any one tree traversal algorithm using STACK.

[OR]

b) Define the following

i) Strongly connected graph

ii) Weighted graph

iii) In degree

iv) Out degree

10. a) Describe about Selection sort.

[OR]

b) Write a note in Radix sort.

SECTION – C (3 X 15 = 45)

Answer any THREE Questions:

11. Describe about elementary data organisations and data structures.
12. Write a procedure to delete a node following a given node in a linked list.
13. Write a procedure to convert infix expression into postfix form.
14. How do you represent a graph in memory?
15. Explain about merge sort with example.