Reg. No. : | | | | | | | | | | |

Question Paper Code: 54824

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Electrical and Electronics Engineering

(Common to Electronics and Instrumentation Engineering and

Instrumentation and Control Engineering)

01UIT424 - DATA STRUCTURES AND ALGORITHMS

(Regulation 2013)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. When overloading unary operators using Friend function, it requires_____ arguments.

   (a) Zero (b) One (c) Two (d) Three

2. A Constructor that does not have any parameters is called_____ Constructor.

   (a) Custom (b) Parameterized (c) Copy (d) Default

3. Class X, class Y and class Z are derived from class BASE. This is _____ inheritance.

   (a)Multiple (b) Multilevel (c)Hierarchical (d)Single

4. Pick out the correct statement in function template

   (a) One function will work with many different types

   (b) it will take a long time to execute

   (c) duplicate code is increased

   (d) None of these

5. The complexity of Bubble sort algorithm is

(a) O(n) (b) O(log n) (c) O(n2) (d) O(n log n)

6. Linked lists are best suited

(a) for relatively permanent collections of data

(b) for the size of the structure and the data in the structure are constantly changing

(c) for both of above situation

(d) none of these

7. Which algorithm is based on divide-and-conquer programming approach?

(a) bubble sort (b) selection sort

(c) merge sort (d) shell sort

8. How many loops are there in Minimum Spanning Tree?

(a) One (b) Two (c) Many (d) None

9. The complexity of Bubble sort algorithm is

(a) O(n) (b) O(log n) (c) $O(n^2)$ (d) O(n log n)

10. Which of the following algorithm design technique is used in the quick sort algorithm?

(a) Dynamic programming (b) Backtracking

(c) Divide and conquer (d) Greedy method

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain overloading concept with unary and binary operators with examples. (8)

12. Explain the following terms with respect to OOPS and give suitable examples.

(i) Polymorphism (8)

13. Write the algorithms for the operations of linked queues. (8)

14. Define NP complete problem. Where it is applied? Discuss one application with example. (8)

15. Compare merge sort and insertion sort algorithms with examples. (8)