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

Question Paper Code: 53826

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Electronics and Communication Engineering

15UIT326 - DATA STRUCTURES AND ALGORITHM ANALYSIS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Object Oriented Programming is a _____ that provides a way of modularizing programs.

   (a) technique (b) concept (c) approach (d) all of the above

2. Which is not a file mode in C++ language?

   (a) ios::binary (b) ios::in (c) ios::nocreate (d) ios::create

3. Which one is not the Abstract Data Type(ADT)?

   (a) Set (b) List (c) Bool (d) Stack

4. The number of leaf nodes in a complete binary tree of depth d is

   (a) 2^{d} (b) 2^{d-1+1} (c) 2^{d+1+1} (d) 2^{d+1}

5. Which of the following sorting algorithms is the fastest?

   (a) heap (b) merge (c) bubble (d) quick

PART - B (5 x 3 = 15 Marks)

6. List out the operators that cannot be overloaded.

7. What do you mean by overriding?

8. Differentiate dequeue and Priority queue.

9. State the properties of Red-Black trees.

10. Differentiate Internal Sorting and External Sorting.

PART - C (5 x 16 = 80 Marks)

11. (a) What is constructor? Explain the different types of constructor with an example. (16)

Or

(b) Discuss Binary operator overloading with an example. (16)

12. (a) Briefly explain various inheritance with an example. (16)

Or

(b) Explain Exception Handling Architecture?.Write a C++ program for handling the Exception of Divide by Zero. (16)

13. (a) Demonstrate any two Stack Application with an example. (16)

Or

(b) Write an algorithm to insert into and delete from the singly linked list using cursor implementation. (16)

14. (a) Develop an algorithm to perform various operations of Binary Search Tree Algorithm with an example. (16)

Or

(b) Review the Prim's and Kruskal's Algorithm with an example to find the Minimum Spanning Tree. (16)

15. (a) Demonstrate Quick sort algorithm for the following data: 45, 90, 23, 56, 18, 47, 62, 8, 78, 39, 98, 2. (16)

Or

(b) (i) Discuss the concept of dynamic programming. (6)

(ii) Find the minimum spanning tree for the following undirected graph using Kruskal's algorithm. (10)