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

Question Paper Code: 50806

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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 of the following problem causes an exception?

   (a) Missing semicolon in statement in main( ) (b) A problem in calling function
   (c) A syntax error (d) A run-time error

3. Abstract data types are _____ abstractions.

   (a) scientific (b) mathematical (c) input-output (d) array

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. Give the general form of an operator function.

8. Why circular queue is efficient than linear queue? Give reasons.

9. State the properties of Red-Black trees.

10. State the concept of greedy algorithm.

PART - C (5 x 16 = 80 Marks)

11. (a) Explain copy constructor with suitable C++ coding. (16)

Or

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

12. (a) Find the product of two matrices of sizes 3 x 4 and 4 x 3 using pointers. (16)

Or

(b) How are exceptions handled in object oriented programming? (16)

13. (a) Illustrate stacks with suitable examples and sketches. (16)

Or

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

14. (a) How are binary search trees implemented? Discuss with diagrams. (16)

Or

(b) Explain AVL rotation using an algorithm. Trace out the algorithm using an example. (16)

15. (a) Find the minimum spanning tree for the following undirected graph using Kruskal's algorithm. (16)

Or

(b) Write a detailed note on spanning tree. (16)

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