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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **CO430 - Data Structures and Algorithms**

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Maximum Marks : **60**   Duration : **3 Hrs**

Edit   Print   View Answer Key   Close   **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. *All questions are compulsory.*
2. *Illustrate your answer with suitable figures/sketches wherever necessary.*
3. *Assume suitable additional data; if required.*
4. *Use of logarithmic table, drawing instruments and non programmable calculators is allowed.*
5. *Figures to the right indicate full marks.*

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1)   **Solve any two sub-question**

   a) Explain insertion and deletion of a node in single linked list with example.   [6]

   b) Compare array with linked list in terms of advantages, disadvantages, usage.   [6]

   c) Explain binary tree search with example.   [6]

2)   **Solve any two sub-question**

   a) Explain the terms linked list, circular linked list.   [6]

   b) Explain heap sort with example.   [6]

   c) Explain bubble sort and insertion sort with example.   [6]

3)   **Solve any two sub-question**

   a) Explain the comparison between linear and non-linear data structure.   [6]

   b) Explain radix sort and selection sort with example.   [6]

   c) Explain basic searching and its types with example.   [6]

4)   **Solve all sub-question**

   a) Explain Prim's Minimum cost spanning tree algorithm with suitable example.   [6]

   b) Explain breadth first search and Depth first search with example.   [6]

5)   **Solve all sub-question**

   a) What is stack as an ADT? Explain with example.   [4]

   b) What is queue as an ADT? Explain with example.   [4]

   c) Explain the terms time complexity, space complexity and asymptotic notation.   [4]

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