GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)
Ph.D. (First Semester) Examinations, December – 2024
23SPPECS1020 - Advanced Data Structures
(CSE)

Time: 3 hrs   Maximum: 70 Marks

The figures in the right hand margin indicate marks.

Answer *ANY FIVE* Questions.   **(14 x 5 = 70 Marks)**   **Marks**

1.a.	Use quadratic probing to fill the Hash table of size 11. Data elements are 23,0,52,61,78,33,100,8,90,10,14	8
b.	Define Dictionaries. How to implement dictionaries?	6
2.	Write the Need for Randomizing. List the different data structures and randomizing algorithms.	14
3.a.	Define skip list and explain basic operations on skip list.	7
b.	What is the search cost of a probabilistic skip list.	7
4.	What is a binary search tree? Create a binary search tree with the following data elements 45, 15, 79, 90, 10, 55, 12, 20, 50	14
5.a.	What is the balance factor in an AVL Tree? Explain the various rotation techniques used to maintain balance.	7
b.	Is every AVL tree can be a Red-Black tree? Construct red black tree with sample data elements.	7
6.a.	Explain components of The Knuth-Morris-Pratt (KMP)Algorithm.	7
b.	Construct The Huffman Coding Algorithm with an example.	7
7.	How to overcome the drawbacks of normal text processing approaches by Applying Dynamic Programming to the LCS Problem	14
8.a.	Construct a problem model with 2-dimensional range searching.	7
b.	Create a priority search tree and search an element using a querying process.	7

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