

(Time: 3 hours) Total marks: 80

Note:

- 1. Q1 is compulsory
- 2. Attempt any Three from remaining Five questions

Q.1 (a)	Given a set of symbols & correspond	ling frequency table as below explain the steps to	o 10
	find the Huffman's code.		10 D

P	Q	R	S T U V W	X
24	18	7	10 13 22 8 12	6

- (b) Define Binary search tree? Write an algorithm for the following,
 - 1. Find smallest number

10

- 2. Search an element.
- Q.2(a) Define Singly linked list. Write the algorithms for
 - i. Insert an element into singly linked list
 - ii. Delete the element from singly linked list.
 - (b) Define Heap .State and explain it's types. Construct a Max heap for the following array of numbers.

 35, 28, 33, 45, 33, 54, 12, 20, 65
- Q.3(a) Define Expression tree? Draw an expression tree for the following expression and also Write it's prefix and postfix traversal.

 ((P/Q) + (M+N)) / (Y*Z)
 - (b) Define Collision in hashing list. Implement hashing with modulo division (listsize=11) and key offset method for following keys: 23, 54, 35, 79, 80 and 102.
- Q.4(a) Define Binary tree? Explain types of Traversal of Binary tree. Reconstruct the binary tree using following traversal

Inorder: DBFEGACIH Preorder: ABDEFGCHI

After construction also write post- order traversal of the binary tree .

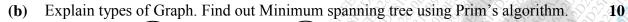
- (b) Define linear queue with functions possible on queue. Explain circular queue. 10
- Q.5(a) Define B-tree and B* tree. Build a B-tree of order 4 by inserting the data in the sequence

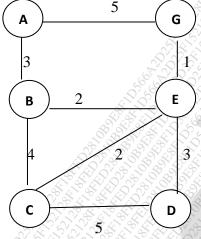
41 13 65 7 75 26 39 88 55 14 22 62 19 32 50

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- (b) Explain difference between:i. Sequential search and Binary Searchii. Stack and Queue

Q.6(a) Write algorithm for Insertion sort. Implement insertion sort for following list. Show the tracing for passes.
34, 89, 85, 30, 45, 50, 28, 25





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