

(OLD COURSE)

(3 Hours)

QP Code :12280

[Total Marks: 100]

- N. B.** (1) Question No. 1 is compulsory
 (2) Attempt any four questions out of remaining six questions
 (3) Assume suitable data if necessary
 (4) Illustrate answer with neat sketches
 (5) Figures to right indicate full marks
- Q.1 (a) Explain linear and nonlinear data structure with an example. (05)
 (b) Explain applications of tree (05)
 (c) Write a program in Java to implement Stack using Array. (10)
- Q.2 (a) Write a program in java to create a singly linked list and perform the following operations : (10)
 (i) Insert in to a list
 (ii) Search for a data
 (iii) Delete from a list
 (iv) Display the list
- (b) Differentiate between Iteration and recursion. Write a program in java using recursion to find palindrome of a string. (10)
- Q. 3(a) Write a program in Java to convert Infix expression to postfix expression. (10)
 (b) Explain different representation of a graph. State advantages and disadvantages of each representation. (10)
- Q.4(a) Write a Java program to create a binary Search Tree. Show BST for following input : 11, 06, 15, 23, 18, 02, 09 (10)
 (b) Explain Huffman Encoding. Apply Huffman encoding method for a sentence MAHARASHTRA. Give the Huffman codes for each symbol. (10)
- Q.5(a) Write a program in Java to sort 'n' given numbers using Insertion Sort. Show the steps to sort the following numbers (10)
 25, 13, 7, 34, 56, 23, 13, 96, 14, 2
- (b) What is double ended queue? Write a program in Java to implement Circular queue. (10)
- Q. 6(a) Write a program in Java to delete a node from a binary tree. Show all possible cases clearly. (10)
 (b) What is priority queue? What are the applications of priority queue? (10)
- Q.7 Write a short notes on (Any Two) (20)
 (a) AVL Tree and Multiway tree
 (b) Threaded Binary Tree
 (c) Hashing
 (d) Merge Sort