

Roll No

MEDC-201

M.E./M.Tech., II Semester Examination, June 2020

System Programming

Time : Three Hours

Maximum Marks : 70

- Note:** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is Flow chart? Write the purpose of flow chart. Draw a flowchart for find factorial of a given number.
b) Define recursion and compare it with iteration. What are the types of recursion?
2. a) What data structure would you mostly likely see in a non-recursive implementation of a recursive algorithm?
b) Write an algorithm to evaluate a postfix expression. Execute your algorithm using the following postfix expression as your input. $ab+cd+*f$.
3. a) How can a stack be used in checking the well-formedness of an expression i.e. balance of the left and right parenthesis of the expression?
b) Discuss the insertion and deletion in a B-tree.
4. a) What do you understand by queue? Write an algorithm for inserting and deleting an algorithm.
b) Explain divide and conquer strategy. Give a suitable example.
5. Make a BST (Binary Search Tree) for the following sequence of number 45, 32, 90, 34, 48, 72, 15, 24, 30, 66, 11, 50, 10. Traverse the BST created in preorder and preorder.
6. Explain the following term
 - i) Heap sort.
 - ii) AVL tree
 - iii) Interpreter
7. a) Sort the following list using heap sort.
63, 33, 40, 20, 50, 88, 60, 11, 30, 45, 65.
b) Why assembler and compiler is needed? Explain assembler and compiler in detail.
8. Write a short note on (any three)
 - i) Quick sort
 - ii) Bubble sort
 - iii) Operating system
 - iv) Static and dynamic allocation
