Unique Paper Code   : 3122611103

Name of the Paper   : Programming Fundamentals

Name of the Course   : **B. Tech. (IT and Mathematical Innovations)**

Semester   : I

Duration : 3 Hours   Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. This question paper contains six questions, out of which any five are to be attempted.

3. Each question carries equal marks.

1. The pre-order traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, 42. Draw the tree using the above given pre-order and also find its in-order and post-order traversal sequence.   (18)

2. What is a Structure? Explain about its template, definition, declaration and various operations like dot operation with suitable examples.   (18)

3. What is Dynamic Memory Allocation Scheme? Explain each function/operation in detail with suitable Example.   (18)

4. What is a function in C? Explain about the functionality of iterative statements in C language with examples.   (18)

5. What is file handling? Why is this required? Explain different file functions with suitable examples.   [18]

6. Perform the following operations on an initially empty queue Q and stack S. Find the satatus of Q and S after operations performed on them-

Enq(Q, 30), Enq(Q, 20), Enq(Q, 10), Enq(Q, 5), Enq(Q, 0), Push(S, Deq(Q)), Push(S, Deq(Q)), Push(S, Deq(Q)), Enq(Q, Pop(S)), Enq(Q, Pop(S)), Push(S, Deq(Q)).

Where,

Enq: Insert an element in Queue Deq: Delete an element from Queue Push: Insert an Element in Stack Pop: Delete an element from Stack (18)