10MT65

Sixth Semester B.E. Degree Examination, July/August 2021
Advanced Computer Programming

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a.   Explain the following with example :   **(10 Marks)**
         i) Template function   ii) Dynamic memory allocation   iii) Recursive function   iv) Value
         parameter   v) Chain iterator class.   **(10 Marks)**
    b.   Explain testing and debugging.

2   a.   What is an array? Explain abstract data type array.   **(10 Marks)**
    b.   Explain the following :
         i) Diagonal   ii) Tridiagonal   iii) Lower Triangular   iv) Upper triangular. **(10 Marks)**

3   a.   Write a program to demonstrate the execution of stack.   **(10 Marks)**
    b.   Explain towers of Hanoi using stack with a program   **(10 Marks)**

4   a.   What is Queue? Explain Abostract datatype of Queue.   **(06 Marks)**
    b.   Explain in detail railroad car rearrangement application of queue.   **(10 Marks)**
    c.   Write a code for first( ) and last( ) for queue.   **(04 Marks)**

5   a.   Define Dictionary with its operation.   **(04 Marks)**
    b.   Compare skiplist and hashing.   **(06 Marks)**
    c.   Explain insertion and deletion of elements in skiplist and give the code for any one
         operation.   **(10 Marks)**

6   a.   Define Tree. Explain element of tree.   **(04 Marks)**
    b.   Write 3 properties of Binary tree.   **(06 Marks)**
    c.   Construct the preorder and postorder for the expression.
         i) a*b + c/d   ii) a + b + c + d   iii) –a + x + y\+b*c*a   **(10 Marks)**

7   a.   Define priority Queue. Write abstract datatype of priority Queue.   **(06 Marks)**
    b.   Write short notes on leftist tree.   **(04 Marks)**
    c.   Define heap. Explain min and max trees with example.   **(10 Marks)**

8   a.   Explain the following :
         i.   Binary search tree
         ii. m-way search tree
         iii. B-tree of order m   **(10 Marks)**
    b.   Write short notes on height, searching inserting of B-tree and application of binary search
         tree.   **(10 Marks)**

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