BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

Question Bank (K – Scheme)

Unit Test-II

Program: - CM/IF3K
Semester: - III
Course and code: - Data Structure Using C **(313301)**

Chapter no 4: Stack

(2 Marks)

1) Write any two operations performed on the Stack.(CO4)
2) List any four applications of stack. (CO4)
3) Convert the following infix expression to its postfix expression using stack. (CO4)
   (A+B)/(C-D)
4) Evaluate the following postfix expression. (CO4)
   5, 7, +, 6, 2, -, *
5) Show the memory representation of stack using array with the help of diagram. (CO4)
6) Draw representation of stack using Linked List. (CO4)

(4 Marks)

7) Explain stack overflow and underflow conditions with example.(CO4)
8) Show the effect of PUSH and POP operation on to the stack of size 10. The stack contains 10, 20, 30, 40, 50 and 60 being at top of the stack. Show diagrammatically the effect of- (CO4)
   i) PUSH 55
   ii) PUSH 70
   iii) POP
   iv) POP
9) Convert the infix expression to its postfix expression using stack ((A+B)*D)^(E-F). Show diagrammatically each step of conversion. (CO4)
10) Evaluate the following postfix expression. (CO4)
    4, 6, 24, +, *, 6, 3, /, -
11) Write a menu driven "C" program to implement stack using array with the following menu. (CO4)
    i) Push
    ii) Pop
    iii) Display
    iv) exit

Chapter no 5: Queue

(2 Marks)

1) List any four types of queue. (CO5)
2) Show the memory representation of queue using array with the help of diagram.(CO5)
3) Define queue. State any two applications where queue is used.(CO5)
4) Enlist queue operation condition. (CO5)
5) Draw representation of queue using Linked List. (CO5)

(4 Marks)

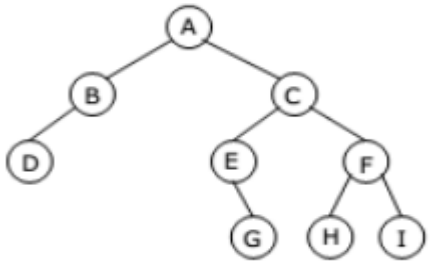
6) Show the effect of INSERT and DELETE operation onto the linear queue of size 10. The linear queue sequential contains 10,20,30,40 and 50 where 10 is at front queue. Show diagrammatically the effect of (CO5)
    ii) INSERT 75
    iii) INSERT 85
    iv) DELETE
    v) INSERT 60
    vi) DELETE
    vii) INSERT 90
7) Differentiate between Stack and Queue with respect to any four parameters. (CO5)
8) Write a neat sketch explain working of priority queue. (CO5)
9) Write a program for insert and delete operation to be performed on queue. (CO5)
10) Draw and explain construction of circular queue. (CO5)
11) Describe queue full and queue empty operation conditions on linear queue with suitable diagram.. (CO5)

Chapter no 6: Tree

(2 Marks)

1) State the following term.(CO6)
   i) Leaf node of a tree
   ii) Degree of a tree
2) Define the following terms. (CO6)
   i) Sibling
   ii) Depth of tree
3) Define (CO6)
   i) Binary tree
   ii) Binary search tree
4) Draw the tree structure of the following expression. (CO6)
   (a-3b)*(2x)

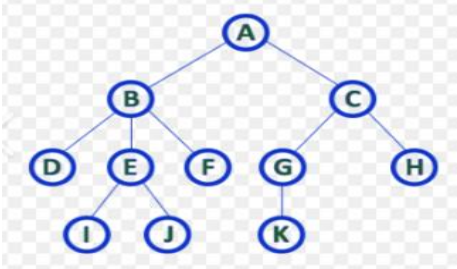
5) Traverse the following tree by the in-order and pre-order. (CO6)



6) Define the term w.r.t. tree. (CO6)
   i) In-degree
   ii) Out-degree

(4 Marks)

7) Construct the Binary Search Tree using following elements.(CO6)
   (35,15,40,7,10,100,28,82,53,25,3). Show diagrammatically each step of construction of BST.
8) From the given tree, complete the following answers. (CO6)



i) Degree of tree:
ii) Degree of node B:
iii) Level of node H:
iv) Indegree of node C:
v) Outdegree of node B:
vi) Height of the degree:

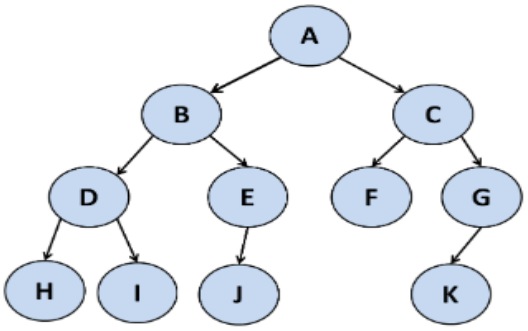
9) Write algorithm for preorder traversal of binary tree. (CO6)

10) Explain Binary Search Tree with example. (CO6)

11) Draw tree for given expression. (CO6)

(a-2b+5c)^2 * (4d-6e)^5

12) Traverse the following tree by the in-order, pre-order and post-order methods. (CO6)



13) Differentiate between general tree and binary tree. (CO6)