15/12/16

End Semester Examination 2016

B.Tech (CSE) III Semester

Data Structure using 'C' language.

Time: Three Hours

MM: 100

Note:

(i) This question paper contains five questions.
(ii) All questions are compulsory.
(iii) Instructions on how to attempt a question are mentioned against it.
(iv) Total marks assigned to each question are **twenty**.

Q1. (Attempt any two questions of choice from a, b and c) (2X10=20 Marks)

a) Write C function to create a Binary search tree and count the leaf nodes from binary search tree with address root.

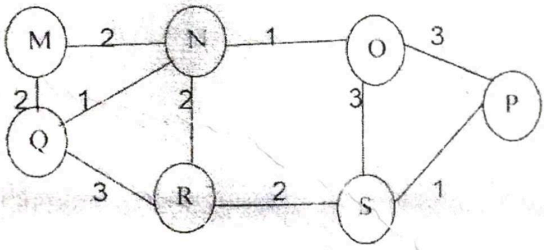
b) Given a singly linked list with pointer start. Write a recursive function to print elements in reverse order (i.e. data of last node should be printed first and so on).

c) Convert the following infix expression into postfix expression.
(1+2*3)+(6*5) – 8/2
Then evaluate the resultant postfix expression using stack (Show all steps)

Q2. (Attempt any two questions of choice from a, b and c) (2X10=20 Marks)

a) Write a 'C' function to split a linked list in two different linked lists odd and even, having odd and even pointer.

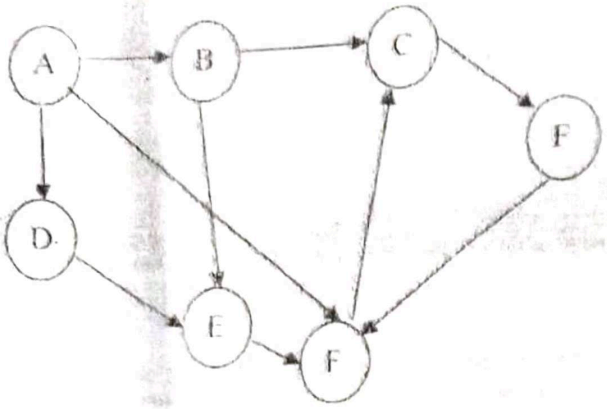
b) Write application of minimum spanning tree. Find minimum spanning tree of the graph given below.



c) Explain Multi key file organization sequential file organization.

Q3. (Attempt any two questions of choice from a, b and c) (2X10=20

a) Give memory representation for the given graph.

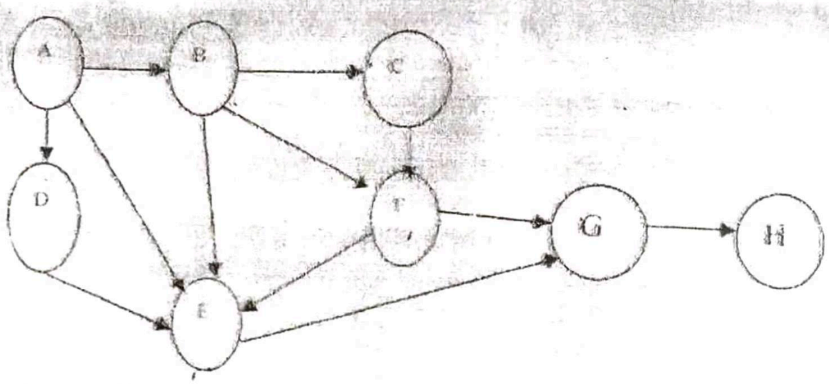


b) Show the steps of quick sort on the following set of elements:
5, 7, 8, 37, 12, 2, 86, 3. Assume the first element of the list to be the pivot element

c) Define a binary tree. What do you mean by tree traversal? Give the different traversal algorithms.

Q4. (Attempt any two questions of choice from a, b and c) (2X10=20 Ma

a) Apply BFS on following graph, starting from vertex A to H



b) Draw the B-tree of order 4 which is created by inserting the following data arriving in sequence:
9, 4, 6, 7, 98, 3, 28, 30,26,77,88.

c) Explain balance factors of an AVL tree. Draw an AVL tree with following keys 11,2,3,16,7,5,4,10,9,17,18.

Q5. (Attempt any two questions of choice from a, b and c) (2X10=20 Mark

(a) Write application of Huffman's algorithm. Draw Huffman's tree for the given data

Data:	M	N	O	P	Q	R	S	T
Weight:	1	2	3	6	4	5	2	8

(b) Assuming that we have a singly linked list with pointer start, write a C function to delete all duplicate nodes from the linked list.

(c) Explain hash collision. What are the different methods of handling overflow in hashing?