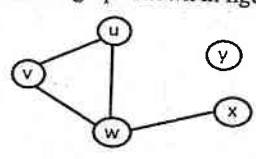


S.T. CS Sem-III Data structures

DURATION:- 2½ hrs 833071123 MARKS:- 75
 Note:- (1) All questions are compulsory.
 (2) All questions carry equal marks.
 (3) Figures to the right indicates full marks.

- Q.1 Attempt any four from the following** 20M
- a) Give 'Queue Full' and 'Queue Empty' conditions for circular queues. CO1(R)
 - b) Write a program in C for implementation of two stacks within a single way. CO1(R)
 - c) Explain implementation of linked lists. CO1(R)
 - d) Write a short note on "Circular Linked List" CO1(R)
 - e) Write a short note on "Doubly linked list" CO1(R)
 - f) What is heap data structure? CO1(R)
- Q.2 Attempt any four from the following** 20M
- a) Explain DFS Algorithm. Explain it with the suitable example. CO2(U)
 - b) What are the different ways available to represent graph in memory? CO2(R)
 What are the application of graph?
 - c) Define Hash Function and write characteristics of good Hash Function. CO2(R)
 - d) Explain in detail Dynamic Hashing CO2(R)
 - e) Write Algorithm for searching and inserting an element in AVL Tree. CO2(R)
 - f) Explain application of Binary Tree CO2(R)
- Q.3 Attempt any four from the following** 20M
- a) Write a program for dynamic implementation of stack using linked list CO1(R)
 - b) Write a short note on "Huffman Algorithm" CO1(R)
 - c) Define priority Queue explain types of priority Queue. CO1(R)
 - d) Write a program for non-recursive inorder binary tree CO1(A)
 - e) Consider the graph shown in figure CO1(A)



- a) Degree of u
 - b) Degree of y
 - c) Sum of degree of all the vertices
- Q.4) Attempt (Any 5)** 15M
- a) What is complexity of DFS transversal CO3(R)
 - b) What are the advantages and disadvantages of separate in chaining? CO2(R)
 - c) Write a short note on "Collision Avoidance Technique" CO2(R)
 - d) What is Heap Structure enlist its type CO2(R)
 - e) Explain AVL Tree CO3(U)
 - f) Explain application of binary tree CO3(U)
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