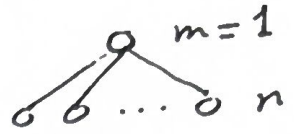
HW 13

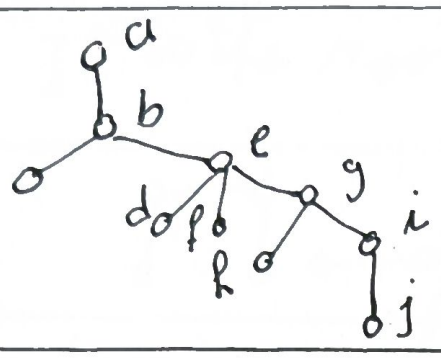
Solution HW 9.1

Discrete Mathematics

P6| If either m or n or both, equals 1

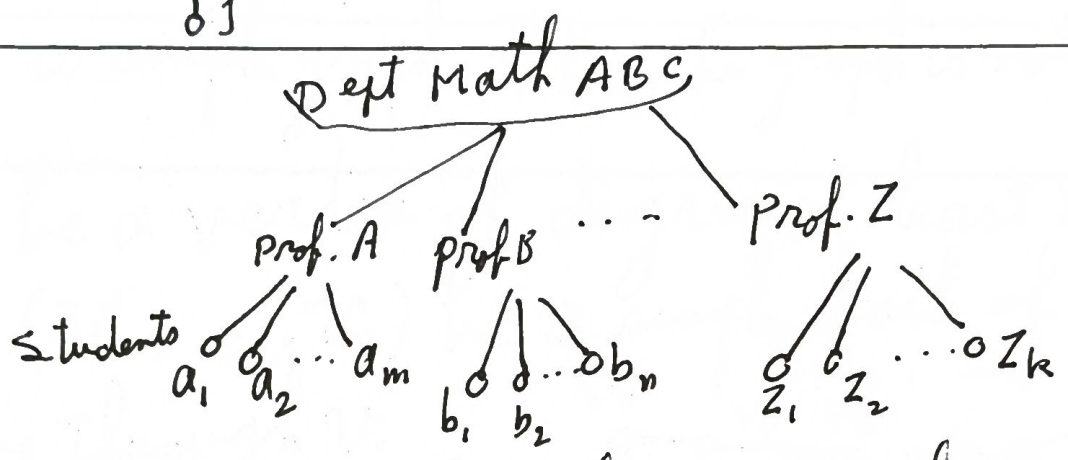


P10)



5

P12)



P30) A tree cannot Contain a subgraph homeomorphic to $K_{3,3}$ and K_5. since Tree does not Contain cycles.

P31) A terminal vertex has degree 1

D.M.

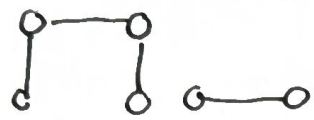
HW 15

HW 9.2 Discrete Mathematics

P12) sibling of f: e, g sibling h: i

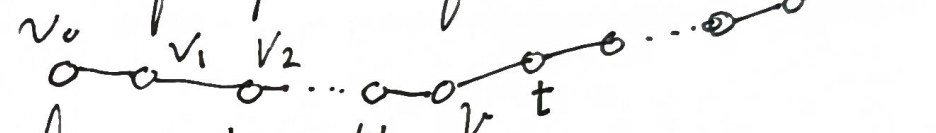
P18) It is the root.

P24)

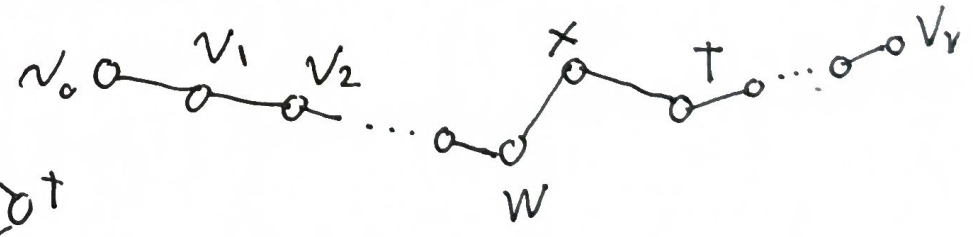


P28) A tree is simple graph. Thus the graph is not a tree.

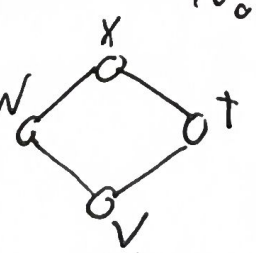
P35) Let v be a vertex of degree at least 2 in a tree G_1 and let $P = (v_0, \ldots, v_n)$ be a simple path of maximum length passing through v.



Since G_1 is a tree, P is not a cycle and, since v has degree at least 2, $v \neq v_0$ and $v \neq v_n$. If removing v and all edges incident on v leaves a connected graph, then there is a simple path, distinct from P, from v_0 to v_n.



Thus we have a cycle



Therefore v is an articulation point.

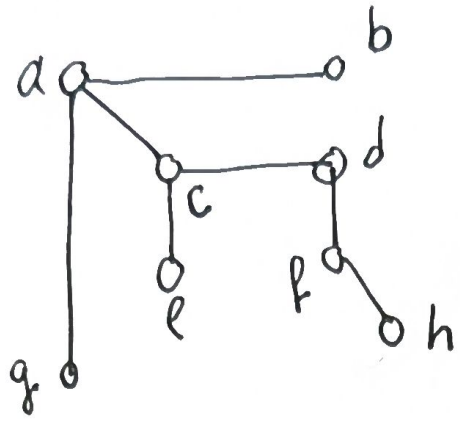
Def: A vertex v in a connected G_1 is an articulation point if the removal of v and all edges incident on v disconnects G_1.

D. M.

HW16

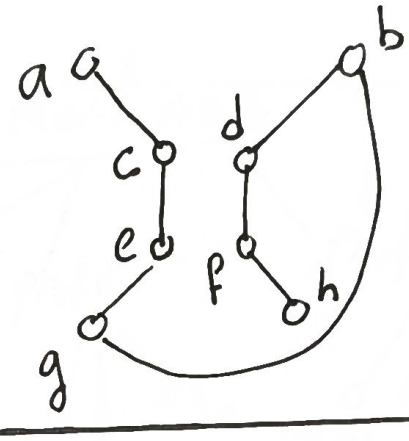
9.3 Discrete Mathematics

P2)

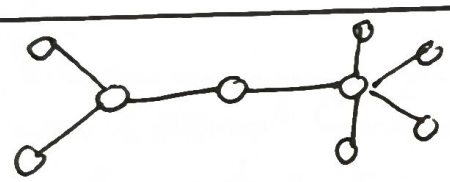


c h b g a d f e

P6) h f d b g e c a



P8)



P18) If T is a tree, every ordering with the same initial vertex produces the same spanning tree, namely T itself.

P25) Both algorithms find simple path v in increasing order of length

---

P31) Modify: Change the line return T to
if (|V'| == n) return true else return false
if the graph is connected, the value true is returned; otherwise the value of false is returned.

P32) Modify: Change the line return true to
print solution
① Delete the line return false.