CSE103 ASSIGNMENT

DISCRETE MATHEMATICS (1.2)

Name:Sumaiya Azad

Student Id:201705048

Date:November 8,2018

Exercise-1.2:

Problem 34:

Five friends have access to a chat room. Is it possible to determine who is chatting if the following information is known? Either Kevin or Heather, or both, are chatting. Either Randy or Vijay, but not both, are chatting. If Abby is chatting, so is Randy. Vijay and Kevin are either both chatting or neither is. If Heather is chatting, then so are Abby and Kevin.

Answer:

Let,p=Heather is chatting,q=Abby is chatthing,r=Randy is chatting,s=Kevin is chatting,t=Vijay is chatting.

1.Assuming p is true:

Then both q,s must be true.

Because of q ,r must be true and because of s ,t must be true.But r and t cannot be true at the same time.

So,p is false(Heather is not chatting).

2.Assuming q is true:

If q is true then r is true,but t and s is false.As s is false(if r is true) then p must be false.

So,the statement q and r can be true.

3.Assuming s is true:

If s is true then t must be true.Similarly r is false(so is q).Because of q being false ,p cannot be true.

So,s and t can chat.

So,from the explanation we can see that either Abby and Randy are chatting or Kevin and Vijay are chatting,but not both.And Heather is not chatting.