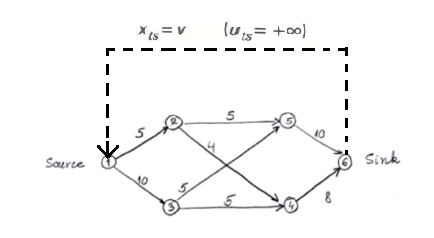
**Solution 1:**



The virtual arc has been shown with bold dotted lines.

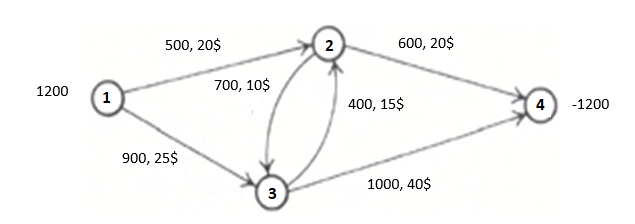
*xts* represents variable z, since *xts* simply returns the z unit of flow back to source from sink.

Maximize *xts* subject to,

(i=1,2,…n ; j= 1,2,…n)

**Solution 2:**

1. The 1200 mcf gas, Maximum usage and Tariff are used to calculate the Minimum Total cost of transportation, which is our decision variable.



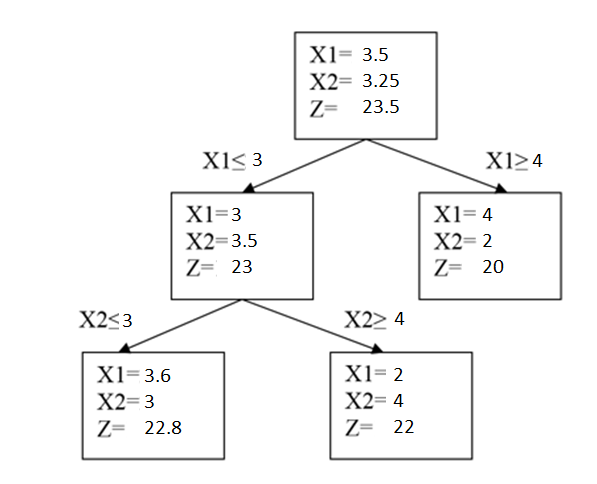
Minimize,

Subject to,

= b(i)

fij  0

**Solution 3)** **Branch and Bound**



**Solution 4:**

Subject to,

= dj

i

Xij 0

Yi= 0 or 1 ( 0 means the warehouse is open and 1 means the warehouse is closed)