Name : Sumit Kumar Yadav

Roll No. : 18CS30042

Answer 1 :

Roll number : 18CS30042

So, N= 3004

Number of IP addresses :

Administration = N =3004

Hostel 1= 2N = 6008

Hostel2 = 3N = 9012

Residential = N = 3004

Academic 1 = 5N = 15020

Academic 2 = 6N = 18024

	No. of hosts	No. of bits required
Administration –	3004	12
Hostel-1 –	6008	13
Hostel-2 –	9012	14
Residential –	3004	12
Academic-1 –	15020	14
Academic-2 –	18024	15

a.

Adm- 2000+1004

H1- 4008+2000

H2- 4008+4004+996

b.

Adm : 255.249

H1 : 258.250

c.

15 bits maximum for host:

3 bits subnet can represent all the 6 blocks at the topmost hierarchy.

subnet mask for the gateway router of Leo University=255.248.0.0

Answer 2 :

The centralized Bellman-Ford Algorithm is used to find out the shortest paths from all other nodes to S(Where S is sink node), but with Distance Vector routing, we can only compute the shortest path from S to all other nodes because of **Convergence Criteria.**

As in the centralized Bellman Ford, we need the number of iterations required.eg. for n number of nodes, you need n-1 iterations. Which requires synchronous updates of distance tables but in the Distance Vector Routing, we don't know the number of iterations required, which changes dynamically as the distance vector updates are asynchronous in nature.

Also, we need to update the local routing table asynchronously as and when you receive an update from a neighbor.

As the RIP uses distance vector routing, it limits the maximum no of hops in network to 16 because the resolution to the counting to infinity problem enforces a maximum cost for a network path. This limits the diameter of a AS to a maximum of 16 hops.