Problem Statement 3: You have been given an IP address block of 192.168.0.0/23. You must provide for the following networks. Subnet assignments are: 1st subnet, CSE Dept. LAN, up to 120 hosts; 2nd subnet, EEE Dept. LAN, up to 60 hosts; 3rd subnet, ETE Dept. LAN, up to 100 hosts; Point to point link between CSE-ETE, CSE-EEE and EEE-ETE.

Subnet Name	Needed Host (Z)	Allocated size	Network Address	Subnet Mask	Assignable address	Broadcast Address	Serial port
CSE							
EEE							
ETE							
CSE-EEE							
EEE-ETE							
ETE-CSE							

Problem Solution:

We have been given an IP address block of 192.168.0.0/23.

STEP 1: Sort the Number of Subnet according to there requirement:

CSE 120+2 = 122

ETE 100+2 = 102

EEE 60+2 = 62

CSE-EEE 2+2 = 4

EEE-ETE 2+2 = 4

ETE-CSE 2+2 = 4

Step 2: Determine the subnet value table

192.168.0.0/23

128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1				
																						23	24	25	26	27	28	29	30	31	32				
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSE Network	192.168.0.0	/25	255.255.255.128
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CSE 1st Host	192.168.0.1		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	CSE Last Host	192.168.0.126		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	CSE Boradcast Host	192.168.0.127		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	ETE Network	192.168.0.128	/25	255.255.255.128
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	ETE 1st Host	192.168.0.129		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	ETE Last Host	192.168.0.254		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	ETE Broadcast Host	192.168.0.255		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EEE Network	192.168.1.0	/26	255.255.255.192
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	EEE 1st Host	192.168.1.1		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	EEE last host	192.168.1.62		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	EEE Broadcast host	192.168.1.63		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSE-EEE Network	192.168.1.64	/30	255.255.255.252
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CSE-EEE 1st host	192.168.1.65		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	CSE-EEE last host	192.168.1.66		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	Broadcast Address	192.168.1.67		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	EEE-ETE Network	192.168.1.68		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	EEE-ETE 1st host	192.168.1.69		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	EEE-ETE last host	192.168.1.70		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	Broadcast Address	192.168.1.71		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	ETE-CSE Network	192.168.1.72		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	ETE-CSE 1st	192.168.1.73		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	last host	192.168.1.74		
1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	Broadcast Address	192.168.1.75		

Step 4: Complete the given table:

Subnet Name	Needed Host (Z)	Allocated size	Network Address	Subnet Mask	Assignable address	Broadcast Address
CSE	112	126	172.17.1.0/25	255.255.255.128	172.17.1.1-172.17.1.126	172.17.1.127
EEE	210	254	172.17.0.0/24	255.255.255.0	172.17.0.1-172.17.0.254	172.17.0.255
ETE	60	62	172.17.1.128/26	255.255.255.192	172.17.1.129-172.17.1.190	172.17.1.191
CSE-EEE	2	2	172.17.1.192/30	255.255.255.252	172.17.1.193-172.17.1.194	172.17.1.195
EEE-ETE	2	2	172.17.1.196/30	255.255.255.252	172.17.1.197-172.17.1.198	172.17.1.199
ETE-CSE	2	2	172.17.1.200/30	255.255.255.252	172.17.1.201-172.17.1.202	172.17.1.203

Now Built the Network