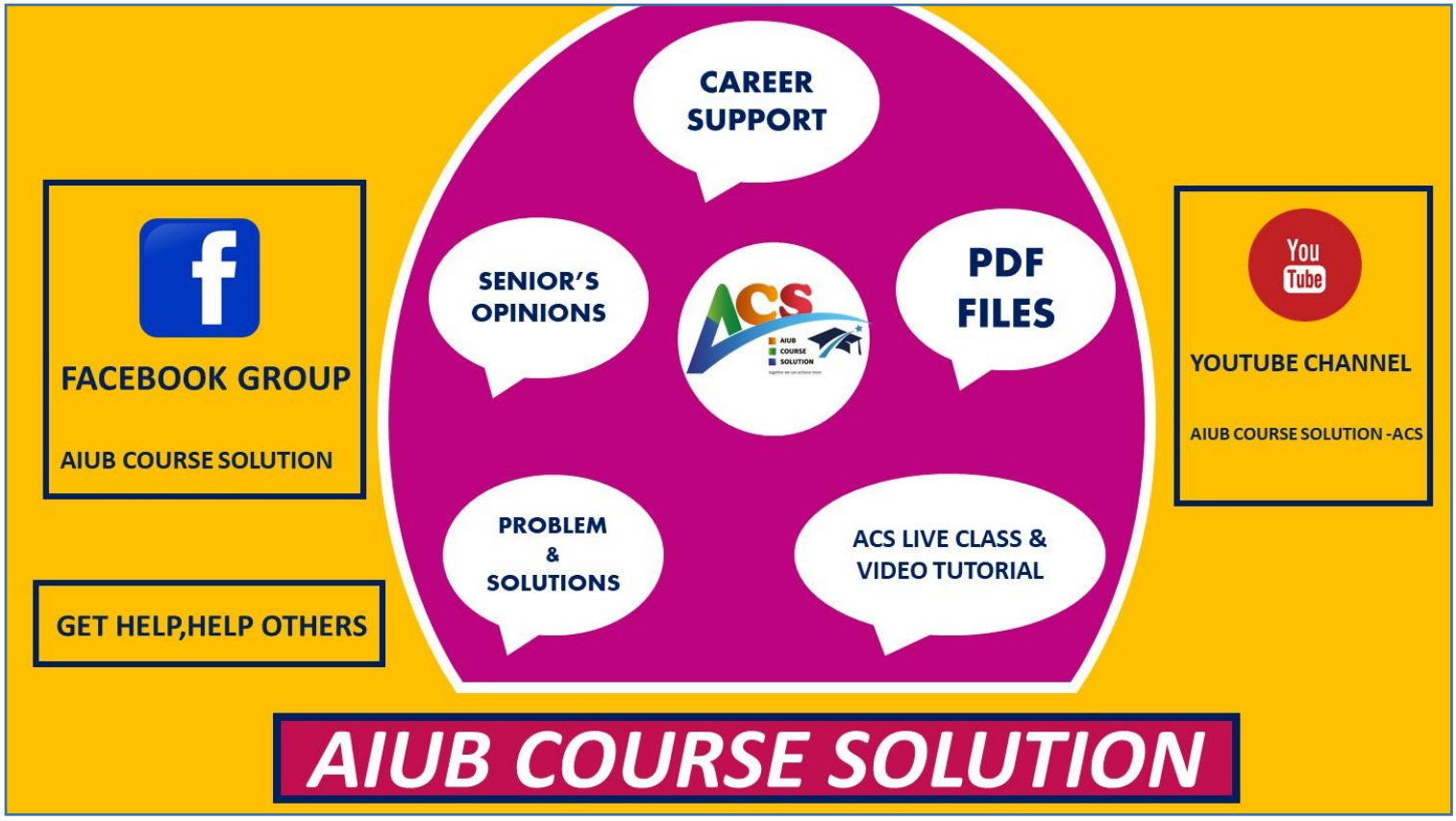

TOGETHER WE CAN ACHIEVE MORE

COURSE NAME: Computer Networks

CHAPTER: Lab Lecture-4

SOLVED BY

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Lab Lecture-4 : Fixed Length Subnet Marking

⇒ FLSM → Fixed Length Subnet Marking

⇒ FLSM-এ different networks-এ same number of IP-এর requirement থাকে। (But যদি different number of IP-এর requirement থাকে- তাহলে FLSM করতে হলে তাহলে highest number of requirement থাকে- Calculation করতে হবে)

Example : Suppose network A, B and has requirements of IP 1200, 2000 and 240. Do subnetting FLSM to allocate IP addresses to each subnet for block 172.16.2.0.

Ans:

Subnet	IPs required	Bits to borrow	No. of Allocated Bits	No. of host bits No. of net bits	Subnet mask	Allocated IP range
B	2000	$2^{11} > 2000 > 2^{10}$	2048	x = 11 y = 32-11 = 21	255.255.248.0	172.16.0.0 – 172.16.7.255/21
A	1200	〃	2048	〃	〃	172.16.8.0 – 172.16.15.255/21
C	240	〃	2048	〃	〃	172.16.16.0 – 172.16.23.255/21

⇒ যেহেতু IP requirements different, এজন্য highest required IP 2000 অনুযায়ী- calculation করতে হবে - সমস্যার জন্য। তাহলে same number bits প্রত্যেক network-এ allocate করা যাবে।

Example- If IP block 172.16.0.0 is used and the mask is 255.255.248.0 (/21), how many subnets and hosts per subnet does this allow for?

Ans- Given that,

number of net bits = 21

∴ number of host bits = 32 - 21 = 11

So, the number of hosts per subnet is = 2^{11} = 2048

And,

172.16.0.0 belongs to class B. So, the number of net bits = 16

and, given number of net bits = 21 (for marking)

∴ No. of bits borrowed = 21 - 16 = 5

∴ The number of subnets = 2^5 = 32

(Ans)

Example- There are 8 branches of network. There is a given IP block 192.168.0.0/21. Allocate IP addresses to the 8 branches.

Ans: Given that,

number of ~~host~~ net bits = 21

∴ number of host bits = 32-21 = 11

∴ number of IP addresses = 2^{11} = 2048

Now, 8 branches has 8 networks.

So, number of IPs in each network = 2048/8 = 256

(Ans)

Example- There are 9 branches of network. There is a given IP block 192.168.0.0/21. Allocate IP addresses to the 9 branches.

Ans: Given that,

number of net bits = 21

∴ number of host bits = 32 - 21 = 11

∴ number of IP addresses = 2^{11} = 2048

Now,

From branch 1 to 7 → allocate 256 IP each = (256×7) = 1792

and in branch 8 and 9 → allocate 128 IP each = (128×2) = 256

(Ans)

=> Total number of IP সব branch -এ বণ্টন করা না গেলে, তবে সব allocate করা যাবে।