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REG NO- 20BRS1262

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CSE1004 TASK SHEET

DESIGNING SUBNETS

1) Given first address of the block:-

$$a = 14.24.74.0/24$$

$$\text{prefix} = 24$$

$$N = 2^{32-24} = 2^8 = 256$$

$$\text{Last address} = 14.24.74.255$$

↓

Fr this block

Total no. of addresses that the block contains

a) 2 subnets, each with 64 address

$$\text{here } n_{\text{sub}} = \lceil 24 + \log_2 \frac{256}{64} \rceil$$

$$= 24 + 2 = 26$$

1st subnet block,

$$\text{First address} = 14.24.74.0/26$$

$$\text{Last address} = 14.24.74.63/26$$

2nd subnet address block,

$$\text{First address} = 14.24.74.64/26$$

$$\text{Last address} = 14.24.74.127/26$$

b) two subnets, each with 32 addresses

$$n_{\text{sub}} = 24 + \log_2 \frac{256}{32} \\ = 24 + 3 = 27$$

3rd subnet block

first address = 14.24.74.128/27

last address = 14.24.74.159/27

4th subnet block,

first address = 14.24.74.160/27

last address = 14.24.74.191/27

c) 3 subnets, each with 16 addresses

5th subnet address,

first address = 14.24.74.192/28

~~last address = 14.24.74.219/28~~

last address = 14.24.74.207/28

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$$n_{\text{sub}} = 24 + \log_2 \frac{256}{16} = 28$$

6th subnet address

~~first address = 14.24.74.220/28~~

~~last address =~~

first address = 14.24.74.208/28

last address = 14.24.74.223/28

7th subblock,

$$\text{First address} = 14.24.74.224/28$$

$$\text{Last address} = 14.24.74.239/28$$

d) 4 subnets, each with 4 addresses,

$$n_{\text{sub}} = \frac{24 + \log_2 256}{4}$$

$$= 30$$

8th subblock,

$$\text{First address} = 14.24.74.240/30$$

$$\text{Last address} = 14.24.74.243/30$$

9th subnet block,

$$\text{First address} = 14.24.74.244/30$$

$$\text{Last address} = 14.24.74.247/30$$

10th subnet block,

$$\text{First address} = 14.24.74.248/30$$

$$\text{Last address} = 14.24.74.251/30$$

11th subnet block

$$\text{First address} = 14.24.74.252/30$$

$$\text{Last address} = 14.24.74.255/30$$

$$\text{Hence, Total no. of block used} = 2 \times 64 + 2 \times 32 + 3 \times 16 + 4 \times 4$$
$$= 256$$

$$\text{Total no. of address in the block} = 256$$

$$\text{Available address} = 0 \text{ (All addresses are utilized)}$$

Subnet Design:-

14.24.74.252/30 - 14.24.74.255/30



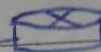
Subnet 11

Subnet 9



14.24.74.244/30 -

- 14.24.74.247/30



Subnet 10

14.24.74.248/30 - 14.24.74.251/30

Subnet 7



14.24.74.224/28 -

- 14.24.74.239/28



Subnet 8

14.24.74.240/30 - 14.24.74.243/30

Subnet 5



14.24.74.192/28 -

- 14.24.74.207/28



Subnet 6

14.24.74.208/28 - 14.24.74.223/28

Subnet 3



14.24.74.128/27 -

- 14.24.74.159/27



Subnet 4

14.24.74.160/27 - 14.24.74.191/27

Subnet 1



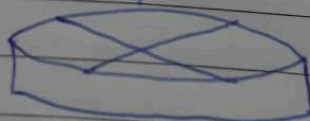
14.24.74.0/26 -

- 14.24.74.63/26



Subnet 2

14.24.74.64/26 - 14.24.74.127/26



14.24.74.0/24 - 14.24.74.255/24