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Question No # (3)

A digital voice channel is made by digitizing a 4-KHz bandwidth analog voice signal. We need to sample the signal at twice the highest frequency. We assumed that each sample require 16 bits.

What is the required bit rate?

Solution No # (03)

The bit rate can be calculated as

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Voice channel is 4-KHz bandwidth

highest frequency ^{Signal} $f_{ol} = f_{max}$

Sample require = 16 bits

Require bit rate = ?

The bit rate can be calculated as

$$2 \times 4000 \times 16 = 128,000 \text{ Kbps}$$

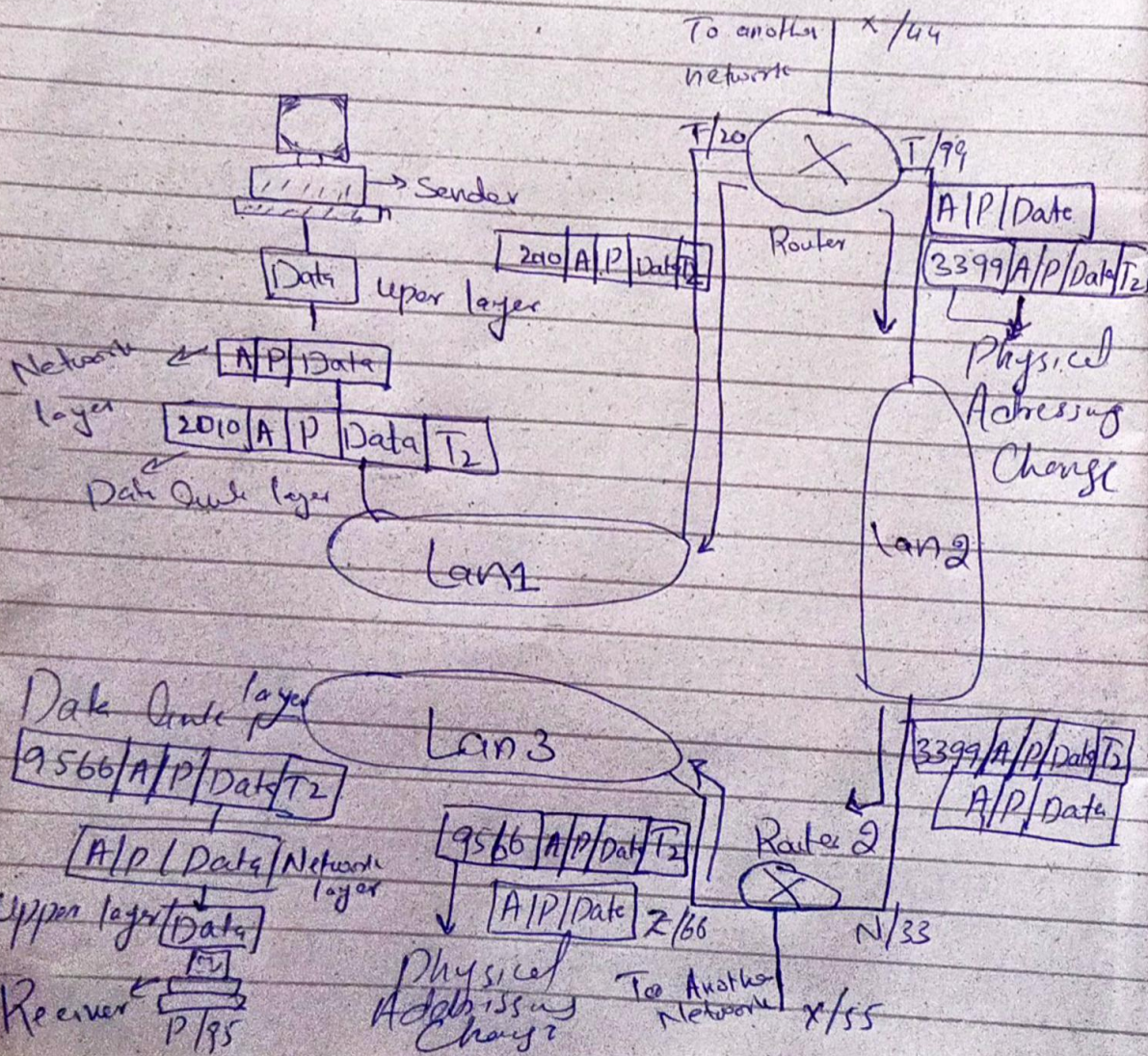
The required bit is

128,000 kbps Answer

_____ x _____ x _____

Answer No # (5)

The missing information on Q5 that I have fill the the missing information.



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- * The missing information are that in this diagram is;
- * In data Link layer Can 1 they missing the Physical addressing.
- * Also another missing the Physical addressing
- * In Can 3 the names of the layers are missing.

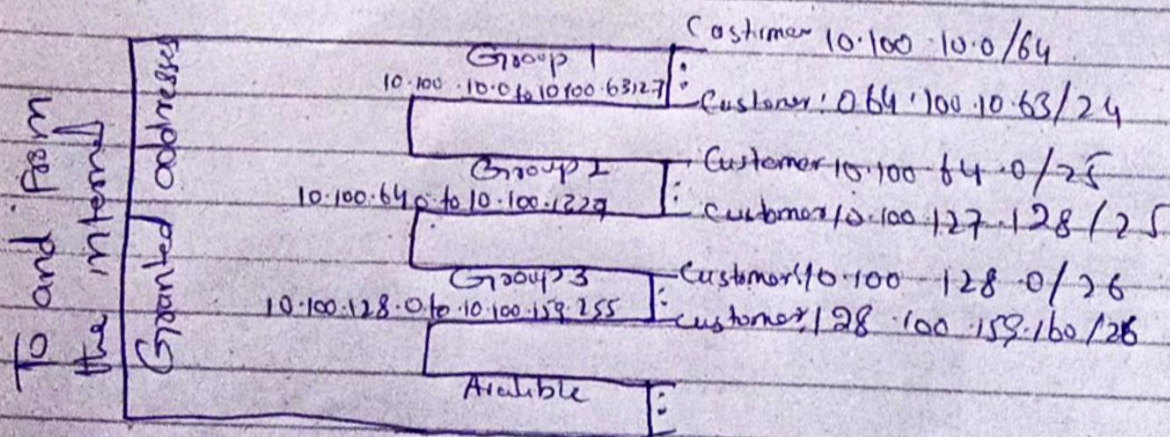
————— x ————— x ————— x ————— x

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Answer No # 24

Solution :



Group No # (1)

For this group each customer need addresses. This

mean \uparrow $8(\log 258)$ bits are needed

to define each host. The

prefix length is \sim Num

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the addresses.

1st Customer: $10.100.10.0/24$ to $10.100.0.255/24$

2nd Customer: $10.100.1.0/24$ to $10.100.1255/24$

3rd Customer: $10.100.127.0/24$ to $10.100.127.255/24$

$$\text{Total} = 64 \times 128 = 8192$$

(2) Group (2)

For this group customers need 128 address. This mean that $7(\log_2 128)$ bits are needed to define each host. The prefix length is then $32 - 7 = 25$ the addresses are

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1st Customers: 10.100.127.0/25 to 10.100.
.127.127/25 ✓

2nd Customer

10.100.127.127/25 to 10.100.127.255/25

128th Customers

10.100.127.128/25 to 10.100.128.255/25

Total = $128 \times 128 = 16384$

Group 3:

For this group each customer needs 32 addresses. This means that 6 ($\log_2 32$) bits are needed for each host. The prefix length is then $32 - 6 = 26$. The addresses are.

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1st Customer: 10.100.128.0/26

2nd Customer: 10.100.128.32/26

128th Customer: 10.100.159.160/26

Total = 128 = 32 = 4096

Number of granted address to

ISP = 65536

Numbers of allocated address

to ISP = 28672

Number of available address

= 36864.