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1) B) Ans. M = 1010001101

$x^5 + x^4 + 0.x^3 + x^2 + 0.x + x^0$

1 1 0 1 0 1

appended M = 1010001101 00000

110101) 1010001101 00000 (

110101

XOR ← ⊕

~~0 0 0 1 0 1 1 0~~

0 1 1 1 0 1 1 1 0 1 0 0 0 0 0

1 1 0 1 0 1

⊕

0 0 1 1 1 0 1 0 1 0 0 0 0 0

1 1 0 1 0 1

⊕

0 0 1 1 1 1 1 0 0 0 0 0

1 1 0 1 0 1

⊕

1 1 0 0 1 0 0

1 1 0 1 0 1

⊕

1 1 1 0

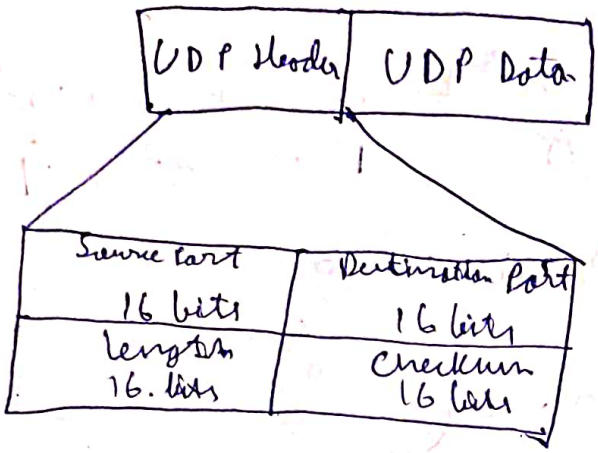
make it 5 digit

↓

0 1 1 1 0 {Ans}

2) A/h UDP header is 8-byte fixed and simple header, while for TCP it may vary from 20 bytes to 60 bytes. First 8 bytes contains all necessary header information and remaining part consist of data. UDP port number fields are each 16 bits long therefore range for port numbers defined from 0 to 65535; port number 0 is reserved.

8 bytes



1) Source port : 2 byte long field used to identify port number of source.

2) Destination Port : 2 byte long field, used to identify the port of destined packet.

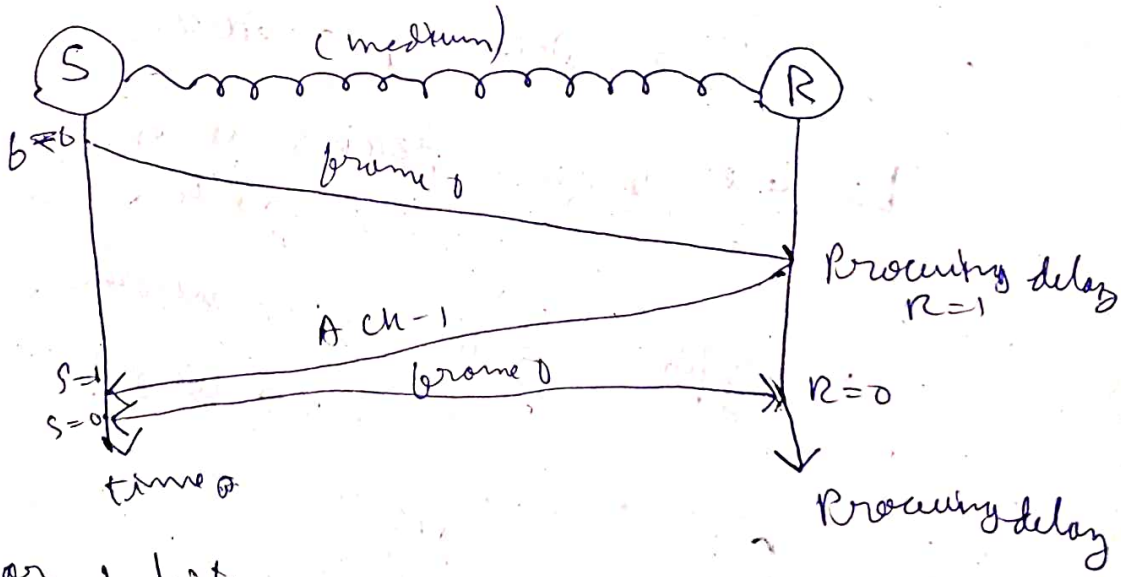
3) Length : the length of UDP including header and the data. It is 16-bits field.

4) Checksum : 2 Bytes long field. It is the 16-bit one's complement of the one's complement sum of UDP header.

4) B) Ans

IPV4	IPV6
• 32-bit address length	• 128-bit address length
• It supports manual and DHCP address configuration	• It supports Auto and renumbering address configuration.
• cannot achieve connection integrity.	• can achieve connection integrity.
• Checksum field is available	• Checksum field is not available

3) B) Stop & wait ARQ



for 2 bits

$$T_t + T_p + T_{pr} + T_{ta} + T_p$$

T_{pr} & T_{ta} → very small

$$\simeq 2T_t + 2T_p \text{ sec}$$

$$\eta = \frac{1}{1+2a}$$

Throughput = $n \times B$

where are issues like that

Frame loss

↳ Here, if ack is not retrieved by sender after a given time, it resends the previous frame.

- there's a waiting time involved,

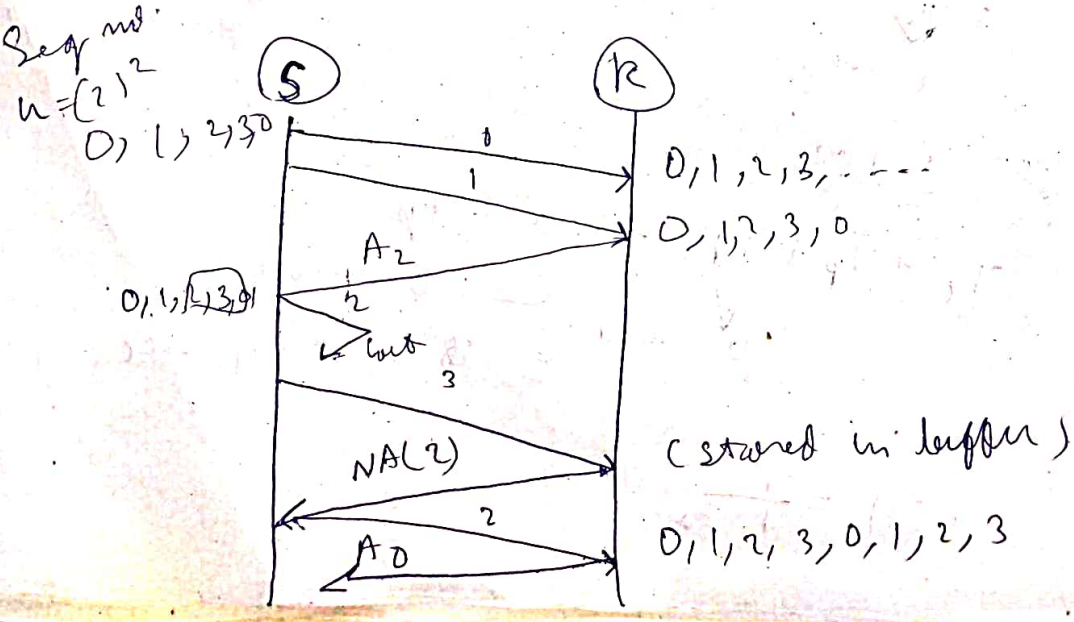
total time $= T_t + 2T_p + T_0$

and, whenever sending a frame, if there's an ack, just add the ack. we, frame to R use bandwidth, known as, piggybacking

In selective-Repeat, receiver's window = sender's = 1

↳ Implicit: Receiver sends ack for every good frame rcvd.

↳ Explicit: R sends negative ack. for each corrupted packet.



6) B) I-frame: carry user data from the network layer. They also include flow and error control information that is piggybacked on user data. The first bit of control field of I-frame is 0.

HDLC Frame: It's a bit-oriented protocol where each frame contains up to six fields. The structure varies according to the type of frame.

S-frame - do not contain information frame carry user data from the network layer. They also include flow and error control information that is piggybacked on user data. The first bit of control field of I-frame is 0.