



**COMPUTER NETWORKS**

**OUTCOME BASED EDUCATION (OBE)**

<b>Question No.</b>	<b>Knowledge Domain</b>	<b>COs</b>
1	Apply	CO2
2	Apply	CO3
3	Apply	CO3
4	Understand	CO2
5	Apply	CO3
6	Understand	CO1
7	Understand	CO3
8	Apply	CO3

1. A channel has a bandwidth of 1 MHz. The SNR for the channel is 63. What will be the appropriate bit rate and signal level.?
  2. Using 5 bit sequence numbers, what is the maximum size of the send and receive windows for the following protocols?
    - i) Stop-and-Wait ARQ
    - ii) Go-Back-N ARQ
    - iii) Selective Repeat ARQ
  3. A channel has a bit rate of 4 kbps and propagation delay of 20 msec. For what range of frame size the stop and wait ARQ gives the efficiency of 50% ?
  4. Compare between Bridge, Switches and Routers.
  5. Given a 10 bit sequence 1010011110 and a divisor 1011. Find the CRC. Check your answer.
  6. Explain the functions of the layers of OSI Reference Model. Compare it with TCP/IP Protocol Suites.
  7. Prove that Stop and wait ARQ is a special case of Go-Back N ARQ with sender window size 1.
  8. Assume that, in a Stop-and-Wait ARQ system, the bandwidth of the line is 1 Mbps, and 1 bit takes 20 ms to make a round trip. What is the bandwidth-delay product? If the system data frames are 1000 bits in length, what is the utilization percentage of the link?
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