BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER: V**
BRANCH: CSE **SESSION : MO/2019**

SUBJECT : CS6107 COMPUTER NETWORKS

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) Define the Protocol. [2]
(b) How much time will it take to send a packet of size L bits from A to B in given setup (A---R1---R2---B). If Bandwidth is R bps, propagation speed is t meter/sec and distance b/w any two points are d meters (ignore processing and queuing delay)? [3]

Q2 (a) What is the advantage of using layered architecture in communication? [2]
(b) How the encapsulation is performed in the OSI reference model? Explain with an example. [3]

Q3 (a) How the sliding window protocol can provide the service to preserve the order in which frames are transmitted. [2]
(b) A series of 8-bit message blocks(frames) is to be transmitted across a data link using a CRC for error detection. A generator polynomial of 11001 is to be used. Use an example to illustrate the CRC checking process. [3]

Q4 (a) A bit string 0111101111101111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing? [2]
(b) Two neighboring nodes A and B uses sliding window protocol with a 3-bit sequence number. As the ARQ mechanism, GO-Back-N is used with window size of 4. Assume A is transmitting and B is receiving Show window position for the following events: [3]
   1. Before A sends any frame.
   2. After A send frame 0,1,2 and receive ACK(acknowledgement) from B for 0,1.

Q5 (a) What is exponential backoff? [2]
(b) Explain the Ethernet frame format. [3]

Q6 (a) What do you mean by collision? [2]
(b) Perform a comparison between prominent wireless technologies. [3]

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