EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term I Examination, Summer 2021 Semester

Course: **CSE 405 Computer Networks**
Instructor: **Dr. Anisur Rahman, Associate Professor, CSE Department**
Full Marks: **30**
Time: **(50 min + 10 min) = 1 Hour**

Note: There are FIVE questions, answer ALL of them. Course Outcome (CO), Cognitive Level and Mark of each question are mentioned at the right margin.

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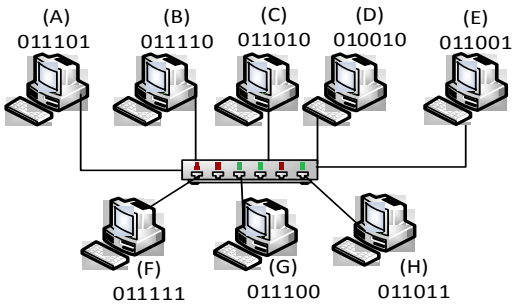
1. a) Formulate the byte sequence transmitted for the following six-character frame when "Byte stuffing" framing method is used. Please indicate the stuffed bytes. [CO1,C3, Mark: 6]

A	B	Esc	Esc	Flag	Flag

b) Briefly explain how violation is defined in "Physical layer coding violation" framing method if binary encoding is used to transfer data.

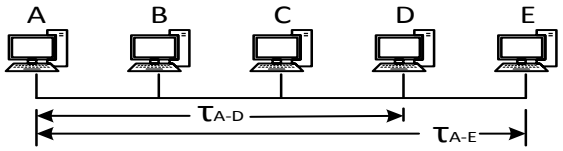
2. Show and **Solve** which of the following numbered stations will acquire the channel at first if B, C, D, G and H are interested to acquire channel by following "Binary countdown" protocol? In general, which stations has the possibility of getting into starvation in binary count down method. [CO1,C3, Mark: 6]



3. What would be the duration of contention phase if contention slot for each host is τ for a 10 hosts LAN where a bit map protocol is followed for channel allocation. If the bit map is "1100101011" for the hosts A, B, ……,I,J respectively, how host G is going keep track of its turn. [CO1,C2, Mark: 6]

4. If number of collision is 4, what would be the elements of sets if 'binary exponential backoff' algorithm is used? **Illustrate** how and when A, B and C will get into collision if sets to pick elements from are *set={0,1,2,3,4,5,6,7}, set = {0,1,2,3} and set ={0,1,2, ……., 14,15}* for the hosts respectively. [CO1,C3, Mark: 6]

5. **Find** and **analyze** the contention period for the node A when node D is to be considered the destination in the following LAN. Assume the LAN uses CSMA/CD protocol for channel allocation purposes, and here propagation distance of τ_{A-D} is less than τ_{A-E}. [CO1,C3, Mark: 6]



Instructions:

a) Write the answers on pages and take pictures of the given answers, make a single pdf file and upload the file in Google class room within the given time period, late submission will be penalized.

b) Draw diagrams if deemed necessary.

c) Make sure your answers DO NOT get shared, resemblance will be penalized severely.