JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT

T-2 EXAMINATION (OCTOBER 2018)

B.Tech 7th Sem. (ECE)

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COURESE CODE: 10M11EC113 MAX. MARKS: 25

COURSE NAME: Advanced Telecommunication Networks

COURSE CREDITS: 3 MAX. TIME: 1.5 Hrs.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. Draw and discuss the frame format of various frames of HDLC. Also discuss the control field format of various frames of HDLC. **(2.5+2.5=5)**

Q2. Discuss and compare the functioning of Go-Back-N Automatic Repeat Request protocol and Selective Repeat Automatic Repeat Request protocol. **(2.5+2.5=5)**

Q3. Why can't CSMA/CA be used for wired networks? Discuss its functioning in detail along with its flow diagram. **(1.5+3.5=5)**

Q4(a). Bit stuff the following data: **(1)**

10101111101111101111110011011111110011111

Q4(b). Byte stuff the following data: **(1)**

ESC		ESC	ESC		Flag	ESC	Flag	ESC			Flag

Q4(c). Design a system in which station 3 can detect the data sent by station 1 with the following specifications: **(3)**

I. There are 4 stations in the system.

II. The codes for each station have to be generated by using Walsh codes with $W_1 = [1]$. Show the 4 codewords.

III. Stations 1 and 2 are sending a 1 bit, station 3 is sending a 0 bit, and station 4 is silent. Show the data on the channel also.

Q5. a) An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows.

a. The first group has 200 medium-size businesses; each needs 128 addresses.

b. The second group has 400 small businesses; each needs 16 addresses.

c. The third group has 2000 households; each needs 4 addresses.

Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations. **(3+0.5=3.5)**

Q5. b) Discuss the importance of Network Address Translation (NAT). **(1.5)**