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10EC/TE841

Eighth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Multimedia Communications

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO full questions from each part.***

PART – A

1 a. List the five basic types of communication network that are used to provide multimedia services. Explain with a neat diagram: i) Telephone network ii) Integrated digital services network. **(10 Marks)**

b. Explain the principle of operation of packet switched network. **(07 Marks)**

c. Derive the maximum block size that should be used over a channel which has mean BER probability of 10^{-4} if the probability of a block containing an error and hence being discarded is to be 10^{-1}. **(03 Marks)**

2 a. Explain the principle of operation of a PCM speech CODEC with a neat diagram. **(10 Marks)**

b. Explain briefly about the concept of interlaced scanning. **(06 Marks)**

c. An analog signal has a dynamic range of 40dB. Find the magnitude of the quantization noise relative to the minimum signal amplitude if the quantizer uses i) 5 bits ii) 10 bits. **(04 Marks)**

3 a. Message comprising seven different characters. A through G, are to be transmitted over a data link. Analysis has shown that the relative frequency of occurrence of each character is A 0.10, B 0.25, C 0.05, D 0.32, E 0.01, F 0.07, G 0.2.

i) Derive the entropy of the messages.
ii) Use static Huffman coding to derive a suitable set of codeword.
iii) Derive the average number of bits per codeword. **(10 Marks)**

b. With a neat block diagram, explain JPEG encoder. **(10 Marks)**

4 a. Explain LPC encoder and decoder with a neat diagram. **(10 Marks)**

b. With neat diagram, explain video compression principles. **(10 Marks)**

PART – B

5 a. Explain CSMA/CD and principle of operation of token ring. **(10 Marks)**

b. Explain in detail, with diagrams, LAN protocols and protocol framework. **(10 Marks)**

6 a. Explain fragmentation and reassembly in the internet with an example. **(10 Marks)**

b. Explain datagram format of IPV6. **(10 Marks)**

7 a. Explain the ATM cell formats. **(10 Marks)**

b. Explain classical IP over ATM LAN. **(10 Marks)**

8 a. Explain TCP socket interface. How the socket primitives are used to carry out active open and passive open connections, with the help of diagram. **(10 Marks)**

b. Explain RTP and RTCP. **(10 Marks)**

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