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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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.