USN | | | | | | | | | | **10EC/TE841**

Eighth Semester B.E. Degree Examination, July/August 2021

Multimedia Communications

Time: 3 hrs.   Max. Marks:100

Note: Answer any FIVE full questions.

1 a. What is multimedia? Explain its applications. (10 Marks)
   b. With diagram, explain different types of multimedia networks. (10 Marks)

2 a. Explain clearly different types of text data representation. (10 Marks)
   b. Derive the bit rate and the memory requirement to store each frame that result from digitization of both a 525 - line and a 625 - line system assuming a 4:2:2 format. Also find the total memory required to store a 1.5 hour movie/video. (10 Marks)

3 a. A series of message is to be transferred between two computers over a PSTN. The messages comprise just the characters. A through H. Analysis has shown that the probability (relative frequency of occurrence) of each character is as follows:
      A and B = 0.25, C and D = 0.14, E, F, G and H = 0.055.
      (i) Use Shannon's formula to derive the minimum average number of bits per character.
      (ii) Use Huffman code to derive a codeword set and prove this is the minimum set by constructing the corresponding Huffman code tree. (10 Marks)
   b. With the aid of diagram, identify the five main stages of operation of JPEG and explain each stage briefly. (10 Marks)

4 a. With the help of a neat diagram, explain LPC encodes and decodes. (10 Marks)
   b. With neat diagram, explain Video Compression Principles and all types of frames. (10 Marks)

5 a. Explain the principle of operation of a token ring network, with the help of a diagram. (10 Marks)
   b. Explain the LAN protocols. (10 Marks)

6 a. Explain fragmentation and reassembly in the internet in detail. (10 Marks)
   b. Describe the operation of ARP and RARP. (10 Marks)

7 a. With the help of a diagram, explain Broadband ATM Cell format. (10 Marks)
   b. Explain the general structure of ATM Switch Architecture. (10 Marks)

8 a. Explain Transmission Control Protocol TCP/IP protocol suit with a neat diagram. (10 Marks)
   b. Explain RTP and RTCP. (10 Marks)

* * * * *