CBCS SCHEME

USN | | | | | | | | | | |

18EC743

Seventh Semester B.E. Degree Examination, Feb./Mar.2022
Multimedia Communication

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain the communication modes available to transfer the information stream. **(10 Marks)**

b. Explain (i) Data network (ii) Broadband multiservice network in detail with suitable figures. **(10 Marks)**

OR

2 a. Explain with the aid of the diagram, how a PSTN can support range of multimedia common applications. **(10 Marks)**

b. Explain in brief interactive applications over internet. **(10 Marks)**

Module-2

3 a. Illustrate the different types of text data representation. **(10 Marks)**

b. Describe the function of signal encoder with the associated waveform. **(10 Marks)**

OR

4 a. Explain Raster-scan operation associated waveform. **(10 Marks)**

b. Derive the bit rate and the memory requirements to store each frame that result from digitization of both 525 and 625-line system assuring a 4 : 2 : 2 format. Also find the total memory required to store a 1 : 5 hour movie/video. **(10 Marks)**

Module-3

5 a. Give a brief description of the 5 main stages associated with the baseline mode of operation of JPEG. **(10 Marks)**

b. Explain CPU management and memory management in multimedia operating systems. **(10 Marks)**

OR

6 a. A series of messages 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 and D = 0.14, E, F, G and H = 0.0555

(i) Use a Shannon's formula to derive the minimum average number of bits per character.

(ii) Use Huffman coding to derive a codeword set and prove this is the minimum set by constructing the corresponding Huffman code tree. **(10 Marks)**

b. Define distributed multimedia system with neat block schematic and also highlight its features. **(10 Marks)**

Module-4

7 a. Discuss the principles of differential pulse code modulation with block diagram. **(10 Marks)**

b. Explain principle of linear predictive coding with block schematic. **(10 Marks)**

OR

8 a. What are the video compression principles, explain with example frame sequence (i) I and P frames (ii) I – P – B frames (iii) PB frames. **(10 Marks)**

b. Using Block diagram, explain H-261 video encoder principles. **(10 Marks)**

Module-5

9 a. What is a LAN? Explain LAN topologies and LAN media access methods. **(10 Marks)**

b. Explain the devices commonly used in LAN. **(10 Marks)**

OR

10 a. Explain Address Resolution protocol. Briefly describe ARP functionality. **(10 Marks)**

b. Explain IPV_4 addressing and IP datagram format. **(10 Marks)**

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