



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<sub>4</sub> addressing and IP datagram format. (10 Marks)

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