

CBCS SCHEME



USN

--	--	--	--	--	--	--	--	--	--

15EC741

Seventh Semester B.E. Degree Examination, Aug./Sept. 2020 Multimedia Communication

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Define the term multimedia and give the basic form of representation of each media. (06 Marks)
- b. Explain with the aid of the diagram, how a PSTN can support range of multimedia common applications. (10 Marks)

OR

- 2 a. Discuss the term interactive television with the help of diagram. (08 Marks)
- b. Define the key application parameters that relate to the networks. (05 Marks)
- c. The web page size is 100 Mbits, calculate the minimum time to transmit the file using :
- i) PSTN and 28.8 Kbps modem
 - ii) ISDN at 64 Kbits per seconds (Kbps)
 - iii) Cable modem at 27 Mbps. (03 Marks)

Module-2

- 3 a. Describe the function of signal encoder with the associated waveforms. (08 Marks)
- b. What do you understand by the terms
- i) Color gamut
 - ii) Additive color mixing
 - iii) Subtractive color mixing
- Give application of both color mixing methods. (08 Marks)

OR

- 4 a. How is formulated text different from unformatted text? Discuss the origin of the term WYSIWYG? (06 Marks)
- b. Derive the bit rate and the memory requirements to store each frame that results from the 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 1.0 hour movie /video. (10 Marks)

Module-3

- 5 a. The character string “AAAABBCD” is to be transmitted using Huffman encoding :
- i) Derive the Huffman code tree
 - ii) Determine the savings in transmission bandwidth over normal ASCII and binary coding. (06 Marks)
- b. Give a brief description of the five main stages associated with the baseline mode of operation of JPEG. (10 Marks)



15EC741

OR

- 6 a. Discuss the main features of Distributed Multimedia Systems (DMS) and give its broad applications. (06 Marks)
b. Describe the functions of multimedia operating systems with respect to real-time processing and QoS based resource management. (10 Marks)

Module-4

- 7 a. With a neat schematic, explain the principle of operation of Differential Pulse Code Modulation (DPCM). (08 Marks)
b. Describe the MPEG perceptual encoder/decoder implementation with neat schematic. (08 Marks)

OR

- 8 a. What do you understand by the terms :
i) Motion estimation
ii) Motion compensation
iii) I-frame, B-frame and 'D' frames
iv) GOP
v) Prediction span. (10 Marks)
b. A digitized video is to be compressed using the MPEG-1 standard. Assuming a frame sequence of :
IBBPBBPBBPBBBI
and average compression ratios of 10 : 1(I) 20 : 1(P) and 50 : 1(B).
Derive the average bit rate that is generated by the encoder for both the NTSC and PAL standards. (06 Marks)

Module-5

- 9 a. Give the benefits of packet switching over circuit switching. (04 Marks)
b. Explain the construction and reconstruction mechanisms of packet voice. (08 Marks)
c. Write the structure of video signal in packet video. (04 Marks)

OR

- 10 a. Write the block diagram of video streaming architecture. (04 Marks)
b. Discuss various compression mechanisms and requirements imposed by streaming applications on the video encoder and decoder. (08 Marks)
c. Give the causes of video end-to-end delays in ATM networks. (04 Marks)

* * * * *