



USN

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
Multimedia Communication

Max. Marks: 80

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

Module-1

- 1 a. Explain : i) Data network
ii) Broadband multiservice network in detail with suitable figure. (08 Marks)
b. Explain Centralized, Decentralized and Hybrid mode multi conferencing with neat figures. (08 Marks)

OR

- 2 a. Discuss the Quality Of Service (QOS) parameters for circuit switched network. (08 Marks)
b. Explain in brief Interactive applications over internet. (08 Marks)

Module-2

- 3 a. Explain the following : i) Hyper text ii) Raster scanning. (06 Marks)
b. With the help of diagram, explain the working of digital cameras. (06 Marks)
c. Derive the bit rate and the memory requirements to store each frame that result from the digitization of both 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. (04 Marks)

OR

- 4 a. With a neat sketch, explain the principle of operation of interlaced scanning. (06 Marks)
b. Derive the time to transmit the following digitized images at both 64kbps and 1.5Mbps
A $640 \times 480 \times 8$ VGA compatible image ; A $1024 \times 768 \times 24$ SVGA compatible image. (04 Marks)
c. Explain the following digital video formats : i) 4 : 2 : 2 ii) 4 : 2 : 0. (06 Marks)

Module-3

- 5 a. With the aid of a diagram, identify the five main stages associated with baseline mode of operation of JPEG and give a brief description of the role of each page. (08 Marks)
b. Explain the typical structure of an IP network. (08 Marks)

OR

- 6 a. Explain the principle of operation of LZW compression algorithm. (08 Marks)
b. Explain CPU management and Memory management in multimedia operating system. (08 Marks)

Module-4

- 7 a. Explain how better sound quality can be obtained by using subband DPCM with the help of block diagram of encoder and decoder. (06 Marks)
b. Explain H.261 encoding formats. (06 Marks)
c. A digitized video is to be compressed using MPEG-1 standard assuming a frame sequence of IBBPBBPBBPBBI..... and average compression ratio 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 digitization formats. (04 Marks)

OR

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.

- 8 a. Explain MPEG – 4 coding principles with the help of a neat diagram. (06 Marks)
b. With a neat diagram, explain video compression principles. (06 Marks)
c. Explain predictive coding. (04 Marks)

Module-5

- 9 a. Discuss about the NTI and CTI reconstruction schemes used in packet voice transmission. (08 Marks)
b. Explain the multiplexing techniques used in ATM networks. (08 Marks)

OR

- 10 a. With the help of necessary diagram, explain the video streaming across the internet. (08 Marks)
b. Discuss about the different Error-Resilient video coding techniques. (08 Marks)

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