CBCS SCHEME

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15EC741

Seventh Semester B.E. Degree Examination, June/July 2024
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 Multimedia. Explain : i) Telephone network ii) Integrated Service Digital Network (ISDN) in detail with figures. **(06 Marks)**

b. Explain with neat diagram multipoint conferencing modes and type of conferencing. **(06 Marks)**

c. Determine the propagation delay associated with the following communication channels :
i) A connection through a private telephone network of 1km.
ii) A connection through PSTN of 200km
iii) A connection over a satellite channel of 50,000km. **(04 Marks)**

OR

2 a. Explain the working principle of circuit mode and packet mode of operation of multimedia network. **(06 Marks)**

b. Explain multimedia applications. **(06 Marks)**

c. Define the following: i) Text ii) Image iii) Audio iv) Video. **(04 Marks)**

Module-2

3 a. Explain Raster – Scan Operation associated with TV/Computer monitor. **(08 Marks)**

b. Derive the time to transmit following digitized images at 64 Kbps and 1.5 Mbps , 640 × 480 × 8, VGA compatible image, 1024 × 768 × 24 SVGA compatible image. **(06 Marks)**

c. Define Aspect ratio of display screen. **(02 Marks)**

OR

4 a. With a neat circuit components and its associated waveform, explain signal encoder design. **(08 Marks)**

b. With the aid of diagram, describe following digitization formats :
i) 4 : 2 : 2 ii) SIF iii) CIF. **(08 Marks)**

Module-3

5 a. A message and its probability of occurrence of each character is of follows :
A and B = 0.25, C and D = 0.14, E, F, G and H = 0.055.
i) Find the minimum average number of bits per character using Shannon's formula.
ii) Construct Huffman code tree and derive a code word set. **(08 Marks)**

b. Define distributed multimedia system with neat block schematic and also highlight its features. **(08 Marks)**

OR

6 a. Discuss Multimedia Operating System with respect to CPU management , Memory management , I/O management and File system management. **(08 Marks)**

b. With the aid of neat block diagram explain JPEG encoder. **(08 Marks)**

Module-4

7 a. Explain DPCM encoder/decoder with a neat diagram. (08 Marks)

b. What are the video compression principles, explain with example frame sequences :
i) I and P frames ii) I – P – B frames iii) PB frames. (08 Marks)

OR

8 a. Explain Linear predictive coding signal encoder and decoder with neat schematic. (08 Marks)

b. Explain H.261 macro block encoding format. (08 Marks)

Module-5

9 a. Explain packet audio and video in the network environment. (06 Marks)

b. Explain video transport across generic network. (06 Marks)

c. Write a short note on analytic mode based approach. (04 Marks)

OR

10 a. Explain packet video in detail. (06 Marks)

b. Explain error resilient video coding. (06 Marks)

c. Write a short note on Error losses ATM. (04 Marks)

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