CBCS SCHEME

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17EC741

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021
Multimedia Communication

Time: 3 hrs. Max. Marks: 100

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

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.

Module-1

1 a. Explain five types of communication network that are used to provide multimedia services. **(10 Marks)**

b. Explain web page, home page, hyperlink, URL, HTML. **(10 Marks)**

OR

2 a. Explain the working principle of circuit mode and packet mode of operation of multimedia network. **(10 Marks)**

b. Determine the propagation delay associated with the following communication channels
i) A connection through a private telephone network of 1 km
ii) A connection through a PSTN of 200 km
iii) A connection over a satellites channel of 50,000km
Assume that the velocity of propagation of a signal in the case of : i) and ii) is $2 \times 10^8 ms^{-1}$ and in the case of iii) $3 \times 10^{+8} ms^{-1}$. **(10 Marks)**

Module-2

3 a. State and explain the basic form of representation of : Text, Image, Audio, Video, Fax Machine. **(10 Marks)**

b. Assuming the bandwidth of a speech signal is from 50Hz through to 10KHz and that of a music signal is from 15Hz to 20KHz, derive the bit rate that is generated by the digitization procedure in each assuming the Nyquist sampling rate is used with 12 bits per sample for the speech signal and 16 bits per sample for the music signal. Derive the memory required to store a 10 minute passage of stereophonic music. **(10 Marks)**

OR

4 a. With the aid of block diagram explain PCM signal encoding and decoding principle. **(10 Marks)**

b. Derive the time to transmit the following digitized images at both 64 Kbps and 1.5 Mbps.
i) A 640 × 480 × 8 VGA compatible image
ii) A 1024 × 768 × 24 SVGA – compatible image. **(10 Marks)**

Module-3

5 a. Explain compression principles. **(08 Marks)**

b. Explain static Huffman coding. **(06 Marks)**

c. Explain JPEG coding principles. **(06 Marks)**

OR

6 a. Discuss multimedia operating system with respect CPU management, memory management, I/O management and file system management. **(08 Marks)**

b. What is multimedia operating system? **(06 Marks)**

c. Explain main features of a DMS. **(06 Marks)**

Module-4

7	a.	With a neat diagram, explain video compassion principles.	(08 Marks)
	b.	Explain MPEG – 4 coding principles.	(06 Marks)
	c.	Explain linear predictive coding.	(06 Marks)

OR

8	a.	Explain H.261 encoding formats.	(08 Marks)
	b.	Explain how better sound quality can be obtained by using subband DPCM with the help of block diagram of encoder and decoder.	(06 Marks)
	c.	Write a note on audio compression.	(06 Marks)

Module-5

9	a.	Explain packet audio and video in the network environment.	(08 Marks)
	b.	Explain video transport across generic network.	(06 Marks)
	c.	Write a short note on multimedia transport across ATM networks.	(06 Marks)

OR

10	a.	Explain multiplexing in ATM networks.	(08 Marks)
	b.	Explain video delay in ATM networks.	(06 Marks)
	c.	Write a short note on errors and losses in ATM.	(06 Marks)

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