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BANGALORE - 560 037

10EC/TE841

Eighth Semester B.E. Degree Examination, June/July 2018
Multimedia Communication

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

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.

PART – A

1 a. List the different types of multimedia networks. Explain (i) Telephone Network (ii) Integrated Services Digital Network (ISDN) in detail with suitable figures. **(08 Marks)**

b. Explain the working principle of circuit mode and packet mode of operation of multimedia networks. **(08 Marks)**

c. List the different operational modes of a communication channel with relevant figures. **(04 Marks)**

2 a. Assuming the Bandwidth of a speech signal is from 50 Hz through to 10 kHz and that of a music signal is from 15 Hz through 20 kHz. Derive the bit rate that is generated by the digitization procedure in each case assuming the Nyquist sampling rate is used with 12 bits per sample for speech signal and 16 bits per sample for music signal. Derive the memory required to store a 20 minute passage of stereophonic music. **(06 Marks)**

b. With the aid of a diagram, explain how an image produced by a scanner or digital camera is captured and stored within a computer memory. **(10 Marks)**

c. Assuming the CD-DA standard is being used device: (i) The storage capacity of a CDROM to store a 60 minute multimedia title (ii) The time to transmit a 30 second portion of the title using a transmission channel of bit rate * 64 Kbps, * 1.5 Mbps **(04 Marks)**

3 a. Explain the meaning of following terms relating to compression:
(i) Lossless and lossy compression
(ii) Source and Entropy encoding. **(10 Marks)**

b. A message comprising of a string of characters with probabilities e = 0.3, n = 0.3, t = 0.2, w = 0.1, • = 0.1 is to be encoded. The message to be sent is 'went'. Compute the arithmetic codeword. **(10 Marks)**

4 a. Explain how better sound quality can be obtained by using subband ADPCM, with the help of block diagrams of encoder and decoder. **(10 Marks)**

b. Draw the block diagram of H.261 video encoder and explain the role of FIFO buffer and the associated high and low threshold values. **(10 Marks)**

PART – B

5 a. Explain in detail token ring network frame formats and field description. **(10 Marks)**

b. Explain in detail, with a diagram LAN protocols and protocol frame work. **(10 Marks)**

6 a. Explain the datagram format of IPv6. Explain the role of each header fields. **(10 Marks)**

b. Explain the operation of internet with a neat diagram of protocols associated with networking components. **(10 Marks)**

7 a. Explain the general structure of ATM switch architecture. **(10 Marks)**

b. Explain the ATM adaptation layer 1 and 2 with neat diagrams. **(10 Marks)**

8 a. Explain TCP/IP protocol suite. **(10 Marks)**

b. In relation to RTP packet format, explain briefly the meaning and use of the following fields: (i) CC and CSRC (ii) M and Payload type (iii) Sequence number. **(05 Marks)**

c. With the aid of a diagram, explain briefly UDP datagram header fields. **(05 Marks)**

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