Second Semester M.Tech. Degree Examination, Dec.2019/Jan.2020
Multimedia Communications

Time: 3 hrs.

Max. Marks: 100

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

Module-1

1   a. Explain any two different multimedia networks, with a relevant diagram. **(10 Marks)**
    b. Define Network Quality of service parameters. Explain circuit switched and Pocket – switched network parameters. **(10 Marks)**

OR

2   a. Assuming the bandwidth of a speech signal is form 50 Hz through to 10 KHz and that of a music signal is from 15Hz through to 20KHz, 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 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. **(06 Marks)**
    b. With the aid of a diagram, explain audio / sound synthesizer. **(04 Marks)**
    c. With the aid of a diagram, explain color image capture using camera and also RGB signal generation methods for the above. **(10 Marks)**

Module-2

3   a. Explain the lossless and lossy compression. **(04 Marks)**
    b. Construct Huffman table and code tree for the given characters. Relative frequency of occurrence of each character is as follows : A & B = 0.25 and C & D = 0.14 , E, F, G & H = 0.055. Also derive the set of code – words for the given characters. **(08 Marks)**
    c. Describe Huffman decoding of a received bit stream assuming code words, with neat schematic diagram. **(08 Marks)**

OR

4   a. Explain Modified READ coding procedure with a neat diagram. **(10 Marks)**
    b. Describe the JPEG coding process, with a neat diagram. **(10 Marks)**

Module-3

5   a. Explain the ADPCM subband encoder and decoder with neat schematic diagrams. **(10 Marks)**
    b. Briefly explain the code – excited LPC. **(10 Marks)**

OR

6   a. Explain the perceptual properties of the human ear, with neat schematic diagrams. **(10 Marks)**
    b. Describe the forward adaptive and fixed bit allocation in Dolby audio coders, with neat schematic diagram. **(10 Marks)**

Module-4

7   a. Explain the P - frame and B – frame encoding procedure, with a neat diagram. **(10 Marks)**
    b. Illustrate the H.261 encoding formats, with neat diagram. **(10 Marks)**

OR

8 a. Explain the MPEG – 1 video bit stream structure, with neat diagrams.   (10 Marks)
   b. Describe MPEG – 4 decoder, with neat diagrams.   (10 Marks)

Module-5

9 a. Explain the live synchronization with delayed presentation and without intermediate long term storage.   (10 Marks)
   b. What are presentation requirements? Explain off – line and on – line re - sampling.(10 Marks)

OR

10 a. Explain the synchronization in a distributed environment.   (10 Marks)
    b. List the five assumptions are necessary prerequisites to apply the rate monotonic algorithm.   (10 Marks)

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