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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; May / June - 2019

Multimedia Communication

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Define Multimedia. List and explain different media types. 5

b. Differentiate between different communications modes. 7

c. List and discuss different QoS parameters relate to network. 8

2 a. Determine the propagation delay associated with the following communication channels :

i) Connection through a private telephone network of 1 km

ii) Connection through PSTN of 200 km

iii) Connection over a satellite channel of 50,000 km

Assume that the velocity of propagation of a signal in the case of i) and ii) is 2×10^{-8} m/s and in the case of iii) 3×10^{8} m/s. 6

b. How a multipoint conferencing is implemented? Explain. 8

c. What do you mean by Movie / Video on-demand? Explain. 6

UNIT - II

3 a. An analog signal has a dynamic range of 40 dB. Determine the magnitude of the quantization noise relative to the minimum signal amplitude, if the quantizer uses i) 6 bits ii) 10 bits. 6

b. Explain in detail Roster scan principle used in TV sets. 8

c. With neat block diagram and characteristic curves explain the principle of PCM. 6

4 a. Derive the scaling factors used for both U and V (used in PAL) and I and Q (used in NTSC) color difference signals in terms of the 3 R, G, B color signals. 6

b. With neat baseband spectrum waveform, explain the color television signal for NTSC and PAL system. 6

c. Derive the bit rate and the memory requirements to store each frame that result from the digitization of both a 525 line and a 625 line system. Assuming a 4:2:2 formats. Also find the total memory required to store a 1.5 hr movie / video. 8

UNIT - III

5 a. A digitized video is to be compressed using the 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. 10

Contd… 2

b. With neat block diagram explain MPEG-4 coding principle. 10

6 a. Show how you would use Huffman coding to encode the following set of tokens : AAABDCEFBBAADCDF 10

b. Using the following table compress the string "HEAD" and find the compression ratio using arithmetic compression, 10

Character	A	B	C	D	E	F	G	H
Frequency	10	20	10	20	50	70	90	30

UNIT - IV

7 a. With neat block diagram, list and explain standard requirements for multimedia applications. 10

b. Explain movie on demand in detail. 10

8 a. Write the protocol stack structure for information browsing and explain. 10

b. How a two party call setup is made by using H.323 gate keeper? Explain. 10

UNIT - V

9 a. In detail, discuss HFC networks. 10

b. Write and explain cable MAC frame formats. 10

10 a. Write a note on ASN.1 10

b. Explain DES opertional modes. 10

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