



P.E.S. College of Engineering, Mandya - 571 401
 (An Autonomous Institution affiliated to VTU, Belgaum)
Seventh Semester, B.E. - Electronics and Communication Engineering
Semester End Examination; Dec. - 2015
Multimedia Communication

Time: 3 hrs

Max. Marks: 100

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

PART - A

- 1 a. Draw and describe the concept of broadcast television Networks with the help of cable and satellite/terrestrial Broadcast Network schemes. 6
- b. A packet switched network with a worst - case jitter of 10 ms is to be used for a number of applications, each of which involves a constant bit rate information stream. Determine the minimum amount of memory that is required at the destination and suitable packet size for each of the following input bit rates. It can be assumed that the mean packet transfer rate of the network exceeds the equivalent bit - rate in each case; 6
- i) 64 kbps ii) 256 kbps iii) 1.5 Mbps.
- c. Discuss Unicast, Broadcast and Multi task strategies with respect to communication modes along with neat diagrams. 8
- 2 a. What is color Gamut? Represent additive and subtractive color mixing obtained from color derivation principle. 6
- b. An analog signal has a dynamic range of 40 dB. Determine the magnitude of the quantization noise relative the minimum signal amplitude, if the quantizer uses the following with, 6
- i) 8 - bits ii) 12 - bits.
- c. Describe the working principle of Facsimile machine. Draw its schematic diagram and digitization format. 8
- 3 a. Assuming the CD - Digital audio standard is being used, derive;
- i) The storage capacity of a CD - ROM to store 60 - minute multimedia title.
- ii) The time to transmit a 30 - second portion of the title using a transmission channel of bit rates 64 kbps and 1.5 Mbps respectively. 4
- Given Data : CD - DA bit rate = 1.411 Mbps.
- b. Write a short note on the schematic of Audio/Sound synthesizer. 4
- c. Explain the following format used in digital video :
- i) SIF ii) CIF 12
- iii) QCIF iv) 4: 2: 0 formats.

- 4 a. Draw and explain the basic operation of LZW (Lempel - Ziv -Welsh) coding algorithm. 10
- b. Write a short note on the following topics with respect to forward DCT of JPEG encoder, 10
- i) Image Preparation ii) Block Preparation.

PART - B

- 5 a. Draw and discuss the Encoder and Decoder schematic of DPCM. Mention the Encoder timing diagram. 10
- b. A digitized video is to be compressed using the MPEG – 1 standard. Assuming a frame sequence of IBBPBBPBBPBBI... and average compression ratios of 10 : 1 (I), 20 : 1 (P), and 50 : 1 (B), derive average bit - rate that is generated by the encoder for both NTSC and PAL digitization formats. 10
- 6 a. Elaborate the general structure of TCP / IP reference model with the help of evolution and application. Draw necessary diagrams. 10
- b. Draw and explain the structure of H. 323 Interpersonal communication standards for packet switched networks. 10
- 7 a. Explain the following topics with reference to interactive applications over the internet, 10
- i) Information Browsing ii) E - commerce.
- b. Draw and explain the schematic of cable modem Termination System (MTS). 10
- 8 a. Describe the basic principle and terminology associated with the world wide web. Draw the neat block diagram. 10
- b. Define the following terms with respect to Web : 10
- i) URLs and HTTP
- ii) HTML
- iii) Java Applet
- iv) Java Script
- v) Forms and CGI scripts.

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