GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VIII EXAMINATION – WINTER 2015

Subject Code:183201   **Date:04/12/2015**
Subject Name: Multimedia Computing
Time: 2:30pm to 5:00pm   **Total Marks: 70**
Instructions:
   1. **Attempt all questions.**
   2. **Make suitable assumptions wherever necessary.**
   3. **Figures to the right indicate full marks.**

Q.1 **(a)** 1. Briefly explain three redundancies found in data compression **03**
             2. Briefly explain Lossy and Lossless compression techniques with example **04**

(b) Define Multimedia systems. Briefly explain Hardware and Software components of Multimedia Systems. What are the desirable features of multimedia systems? **07**

Q.2 **(a)** Define Entropy. Suppose there are seven symbols and their probability is 0.25,0.20,0.15,0.15,0.10,0.10,0.05 respectily. Find Entropy. **07**
(b) Given the eight symbols A, B, C, D, E, F, G, and H with probabilities 1/30, 1/30, 1/30, 2/30, 3/30, 5/30, 5/30, and 12/30, Find Huffman Code and calculate the average code size **07**

OR

(b) Briefly explain dictionary based coding. Explain LZW coding **07**

Q.3 **(a)** Briefly explain JPEG image compression (Encoder and Decoder). Explain each stage of JPEG compression. Is it lossy or lossless techniques? Justify your answer **07**
(b) With example explain Arithmetic coding. **07**

OR

Q.3 **(a)** Briefly explain standard metric like MSE, SNR and PSNR to measure the quality of reconstructed images compared with the original one **07**
(b) Briefly explain basic methods used for video compression **07**

Q.4 **(a)** Briefly explain MPEG-1,MPEG-2 and MPEG-4 standard **07**
(b) Briefly explain ADPCM encoder and decoder for Audio compreesion **07**

OR

Q.4 **(a)** Briefly explain MPEG encoder and decoder for Audio compression **07**
(b) Briefly explain PCM and DPCM **07**

Q.5 **(a)** Briefly explain discrete wavelet transform (DWT) based image compression **07**
(b) Briefly explain Sub sampling and Quantization for image compression **07**

OR

Q.5 **(a)** Briefly explain Discrete Cosine Transform (DCT). Why DCT is used for image Compression. Why DCT applied on 8X8 block rather than on entire Image in Compression. **07**
(b) Briefly explain Streaming. Briefly explain applications of Multimedia Networks **07**

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