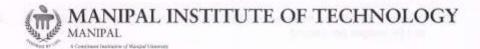
Reg. No.				
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## III SEMESTER M.C.A.

## **END SEMESTER EXAMINATIONS, NOV - 2017**

SUBJECT: MULTIMEDIA COMMUNICATIONS [MCA 5016]

## REVISED CREDIT SYSTEM (24/11/2017)

Time: 3 Hours

MAX. MARKS: 50

## Instructions to Candidates:

- Answer ALL the questions.
- Missing data may be suitable assumed.
- 1A. Explain audio coding by DPCM.

5

Consider the following predictor and quantization table.

$$\hat{f}_n = \text{trunc} ((\hat{f}_{n-1} + \hat{f}_{n-2})/2)$$

$$\tilde{e}_{\rm s} = Q[e_{\rm o}] = 16 * trunc((255 + e_{\rm o})/16) - 256 + 8$$

Code the sequence f1...f5= 180,128,140,120,200 using DPCM.

- List out the various performance measures of data compression. Compare SNR and SQNR.
- 1C. Compare with GIF & PNG image format.

2

3

 Consider random variable X = (x<sub>1</sub>, x<sub>2</sub>, x<sub>3</sub>, x<sub>4</sub>, x<sub>5</sub>, x<sub>6</sub>, x<sub>7</sub>) with its probabilities (0.48, 0.26, 0.12, 0.04, 0.04, 0.04, 0.02). 5

- (a) Find a binary Huffman code for X
- (b) Find the expected code length for this encoding.

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2B.	Explain general data compression model.	3
2C.	Calculate the bit-rate for video of 640 X 480 pixel color image of 24 bits depth and 60 images per second	2
3A.	Explain H.264 video coding with a neat block diagram.	5
3B.	List out different characteristics of sound and what each of them signifies?	3
3C.	Compare Hierarchical and Progressive DCT mode of JPEG image coding.	2
4A,	Consider the alphabet {a, b, c, d}, with probabilities {0.4, 0.3, 0.2, 0.1}. Encode the symbol 'aacad' using Arithmetic coding.	5
4B.	Explain intra and inter object synchronization.	3
4C.	Explain the different operations on data in MDBMS.	2
5A.	Code the following sequences of symbols using LZW coding. Show intermediate steps.  AABABBABCABAABAA	5
5B.	Compare full search and fast search motion estimation techniques used in video coding. Explain subpixel motion estimation.	3
5C.	What is MIDI? Mention its advantage and disadvantages.	2

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