

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-VI • EXAMINATION – SUMMER 2013

Subject Code: 640007

Date: 31-05-2013

Subject Name: Data Compression (DC2)

Time: 10.30 am - 01.00 pm

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) (i) Name any two compression technique based on statistical model. **07**
(ii) Explain the term: sliding window in 'sliding window compression'.
(iii) List any three performance measures of data compression.
(iv) What do you mean by Prefix property of a code?
(v) Define 'static dictionary'?
(vi) Write basic function of ADC and DAC.
(vii) Name any three file formats using graphic compression.
- (b) (i) List and explain the data items used in the token in LZ77 technique. **03**
(ii) Write an algorithm to build Shannon-Fano tree. **04**
- Q.2** (a) Explain LZ77 encoding algorithm using string 'Gujarat Gaurav'. **07**
(b) Compare LZ77 and LZSS techniques. **07**
- OR**
- (b) Compare LZ77 and LZ78 techniques. **07**
- Q.3** (a) Explain two important factors affecting the quality of reproduction of audio waveform. **07**
(b) Write a short note on lossless compression of sound. **07**
- OR**
- Q.3** (a) Discuss about PC-based sound. **07**
(b) Write a short note on silence compression of sound. **07**
- Q.4** (a) Describe the advantages of arithmetic coding over Huffman coding. **07**
(b) Explain about differential modulation adaptive coding. **07**
- OR**
- Q.4** (a) Explain encoding of string 'world wide web' using LZW. **07**
Q.4 (b) Explain the problems of using dictionary-based compression methods on graphics. **07**
- Q.5** (a) Write the use of DCT and IDCT in graphical compression. **07**
(b) Given a matrix of pixels, how can one convert it into a DCT matrix? **07**
- OR**
- Q.5** (a) Given a matrix of pixels, how can one convert it into a DCT matrix? **07**
(b) Discuss about reordering the DCT block in the zig-zag sequence with its purpose. **07**
