

www.FirstRanker.com

www.FirstRanker.com

Printed Pages:02 Paper Id: 110241

#### 

#### B TECH (SEM-VIII) THEORY EXAMINATION 2018-19 DATACOMPRESSION

# Time: 3 Hours

Total Marks: 100

 $2 \ge 10 = 20$ 

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

### 1. Attempt *all* questions in brief.

- a. Is Huffman coding is a lossless or lossy compression? Write applications of Huffman coding.
- b. What is a composite source model?
- c. What are prefix codes?
- d. Explain JBIG standard.
- e. Explain entropy.
- f. Define compression ratio.
- g. Determine whether the code  $\{0, 10, 110, 111\}$  is uniquely decodable or not.
- h. Which compression technique is used in "compress" command of Unix operating systems?
- i. Explain uniform quantizer.
- j. What is entropy coded quantization?

# SECTION B

#### 2. Attempt any *three* of the following: **O**

- a. What are the advantages of vector quantization over scalar quantization? Explain with the help of an example.
- b. What is Data Compression? Why we need it? Explain Compression and Reconstruction with the help of block diagram.
- c. Write short note on Golomb codes & Tunstall codes.
- d. What do you mean by Quantization? Describe the quantization problem with the help of an example in detail.
- e. Explain various types of dictionary based coding techniques.

# SECTION C

# 3. Attempt any *one* part of the following:

- (a) What do you mean by lossless compression and lossy compression? Compare lossless compression with lossy compression
- (b) What do you understand by information? Give an alphabet  $A=\{a,a2,a3,a4\}$ , find the first order entropy of the following: P(a1)=1/2, P(a2)=1/4, P(a3)=P(a4)=1/8.

# 4. Attempt any *one* part of the following:

- (a) 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, and 12/30:
  - i) Draw the Huffman tree for these symbols.
  - ii) Compute the average no. of bits/symbol.
- (b) Differentiate between adaptive Huffman coding and Huffman coding?

G

 $10 \ge 3 = 30$ 

 $10 \ge 1 = 10$ 

 $10 \ge 1 = 10$ 

www.FirstRanker.com FirstRanker.com | 17-May-2019 13:28:43 | 45.115.62.2

# Page **2** of **2**





# 5. Attempt any *one* part of the following:

- (a) Compare and contrast LZ77 and LZ78 with examples
- (b) Discuss the steps involved in Basic Algorithm for Prediction with Partial Match. (PPM).

# 6. Attempt any *one* part of the following:

- (a) Explain the various distortion criteria used in lossless schemes.
- (b) Differentiate between uniform and non uniform quantization.

# 7. Attempt any *one* part of the following:

- (a) Differentiate between scalar quantization and vector quantization.
- (b) Explain the steps of Lindo-Buzo-Gray algorithm.

www.FirstRanker.com

# $10 \ge 1 = 10$

 $10 \ge 1 = 10$ 

 $10 \ge 10 = 10$