

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST -2 EXAMINATION- Oct 2017  
B.Tech (CSE & IT) VIIth Semester/PhD

COURSE CODE: 10B1WCI737

MAX. MARKS:25

COURSE NAME: Image Processing Techniques

COURSE CREDITS: 03

MAX. TIME: One Hour Thirty Minutes

**Note:** All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

**Ques 1 [2 + 5 = 7 Marks]** List the difference between Huffman and arithmetic compression techniques with suitable examples/justifications. Encode the word *SWISS\_MISS* by arithmetic coding.

**Ques 2 [2 + 5 = 7 Marks]** Discuss block truncation coding (BTC) along with their merits and limitations in brief? Apply BTC to this input image by dividing the input image into  $2 \times 2$  block,  $4 \times 4$  block. Also compare the visual quality of  $2 \times 2$  BTC image with  $4 \times 4$ .

$$\begin{bmatrix} 75 & 76 & 78 & 80 \\ 82 & 84 & 68 & 70 \\ 66 & 70 & 73 & 65 \\ 86 & 75 & 60 & 64 \end{bmatrix}$$

**Ques 3 [2 + 5 = 7 Marks]** Compare and contrast discrete wavelet transform (DWT) and discrete cosine transform (DCT) in brief? Also discuss the small fluctuations feature, multi-resolution analysis, conservation and compaction of energy properties of Haar wavelet with suitable example/justification.

**Ques 4 [2 + 2 = 4 Marks]** Write the short notes on following

- Discrete Cosine Transform (DCT)
- Emerging Trends in Image Processing