

M.E. DEGREE EXAMINATIONS: JUNE 2011

Second Semester

COMMUNICATION SYSTEMS

COM505: Multimedia Compression Techniques

Time: Three hours

Maximum Marks: 100

Answer ALL Questions

PART A (10 x 2 = 20 Marks)

1. What is the need for compression?
2. What are the basic components in source coding?
3. Compress the data 'ABBBBBBBBBBCDEEEEF' using Run length coding and hence compute the number of bytes before and after compression?
4. What are the basic steps to encode the data using arithmetic coding?
5. What are the special features of G.722 coder?
6. What are the Salient features of silence compression in audio?
7. Draw the basic block diagram of DPCM.
8. What are the features improved in JBIG-2?
9. Define motion estimation and what is the idea behind Motion estimation?
10. What is the basic idea behind Block Matching?

PART B (5x16=80 Marks)

11. a) (i) What are the important parameters used to represent audio signal in frequency domain? (8)
- (ii) Explain the basic compression model with a neat block diagram. (8)

(OR)

b) Explain in detail about image data representations.

12. a) (i) Given the probabilities $p(x)=\{0.01,0.02,0.05,0.09,0.18,0.2,0.2,0.25\}$, Encode using Huffman code and calculate the average length. (10)
- (ii) Explain the features of adaptive Huffman coding. (6)

(OR)

b) Encode the string “SWISS MISS” using arithmetic coding by calculating ranges.

13. a) Explain in detail the basic speech encoder and decoder with a neat block diagram.

(OR)

b) Explain in detail the CELP vocoder analyzer and synthesizer with a neat block diagram.

14. a) Explain the features and key components involved in JPEG 2000 in detail.

(OR)

b) Explain in detail about EZW algorithm in detail.

15. a) Explain the various blocks in standard MPEG video compression in detail.

(OR)

b) Explain in detail about H.261 with a neat block diagram.
