

**M.E DEGREE EXAMINATIONS: JUNE/JULY 2013**

Second Semester

**COMMUNICATION SYSTEMS**

COM505: Multimedia Compression Techniques

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

1. Define vector quantization and give its merit over scalar quantization
2. Why is data compression necessary for Multimedia signals?
3. List the applications of Huffman coding
4. List the various approaches in LZ family algorithms.
5. Write the expressions for A law and  $\mu$  law companding.
6. What is the importance of sub band coding in audio compression?
7. In what way SPIHT is more efficient than EZW?
8. State the differences between JPEG and JPEG 2000.
9. What is motion compensation?
10. What do you meant by profiles and levels in MPEG 2 standard?

**PART B (5 x 16 = 80 Marks)**

11. a) (i) Discuss in detail the features of multimedia signals (8)  
(ii) Estimate the amount of storage required for various multimedia data. (8)

**(OR)**

- b) (i) Describe the different approaches to compress multimedia data. (8)  
(ii) Describe the evaluation techniques for compression with an example each. (8)

12. a) Explain the Huffman coding algorithm. Show how you would use Huffman coding to encode the following set of alphabets: AAABDCEFBBAADCDF

**(OR)**

- b) Explain dictionary based compression technique. With an example explain how LZW dictionary encoding is done.

13. a) (i) Explain the various audio compression techniques. (8)  
(ii) Give a detailed description of G.722 audio coding scheme (8)  
(OR)
- b) (i) What are channel vocoders? (6)  
(ii) Describe the concept of CELP vocoder in audio compression. (10)
14. a) (i) Explain DPCM with backward adaptive prediction? (8)  
(ii) Compare JPEG and JBIG standards. (8)  
(OR)
- b) (i) Define wavelet. Discuss the concept of wavelet based compression techniques. (10)  
(ii) Discuss the role of QMF in sub band coding. (6)
15. a) Discuss the DVI technology for symmetric and asymmetric motion video compression / decompression.
- (OR)
- b) (i) Describe MPEG-1 standard (8)  
(ii) Write a note on Packet Video (8)

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