

Reg. No. :

Question Paper Code : 11073

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Elective

Communication Systems

MU 4091 – MULTIMEDIA COMPRESSION TECHNIQUES

(Common to : M.E. Communication and Networking/M.E. Digital Signal Processing/  
M.E. Electronics and Communication Engineering/M.E. Multimedia Technology)

(Regulations – 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Multimedia and state the types of media present.
2. State the needs of compression and types of compression standards.
3. State the need for variable length coding for text data.
4. Define the term \_Loss \_less compression for text data. List drawbacks of lossy compression standards for text media.
5. List the advantages of wavelet based compression methods.
6. State the possible uses of SPIHT coders.
7. List present day Audio stream Standards.
8. Define the term sub-band coding and its possible uses.
9. State the need for Digitalization of Video Signals and its advantages.
10. List the present day trends in compression standards.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the Evolution of present day Multimedia application Systems.(13)

Or

- (b) Discuss in detail, the elements of Information Theory. Discuss the advantages and disadvantages of Error Free compression. (6+7)

12. (a) Explain Huffman coding algorithm. Design a Huffman tree and an equivalent code for the following symbol probabilities: 0.3, 0.1, 0.2, 0.05, 0.1, 0.25 (6+7)

Or

- (b) Discuss in detail, the LZW algorithms with their advantages with suitable examples. (6+7)

13. (a) Discuss the Evolution of JPEG series of image compression methods. (13)

Or

- (b) Discuss the components of JPEG 2000 standard. (13)

14. (a) Discuss the basic sound filtering and compression methods. (13)

Or

- (b) Discuss and compare the silence and speech compression standards. (13)

15. (a) Discuss the term motion prediction and compensation models in video. (6+7)

Or

- (b) Discuss the complexities in DVI real time compression applications. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Discuss the issues present in dictionary based text compression techniques. With a real - time examples. (15)

Or

- (b) Discuss the stages of JPEG standard and explain how they are applied to color RGB images. With a sample application. (15)