

Time Allowed: 3 Hrs.**Maximum Marks: 100****Note: Attempt any five questions. All questions carry equal marks.**

- I.
- Explain how the LZW coding algorithm can be applied to the (compressed) image data. Include in your explanation how compression is achieved and how the receiver interprets the compressed information.
 - The following character string is to be transmitted using Huffman coding:
ABACADABACADABACABAB
 - Derive the Huffman code tree.
 - Determine the saving in transmission bandwidth over normal ASCII and binary coding.
- II.
- Explain the meaning of the following terms relating to video compression:
 - moving pictures,
 - MJPEG,
 - Motion estimation and compensation.Include in your explanation why the latter is used.
 - Explain how ADPCM scheme obtains improved performance over a DPCM scheme.
- III.
- Describe in detail Packet switched networks.
 - Explain the lossy and lossless data compression.
- IV. With the aid of diagrams, describe the role of each of the five layers that make up TCP/IP reference model.
- V. Explain the need of audio and video standards? Explain different MPEG standards and also give their frame structure.
- VI. List the bit rate requirements for the (compressed) audio and video associated with the following entertainment applications:
 - Movie/video-on-demand
 - Interactive televisionState the reason why a return channel is needed with these applications and hence the bit rate of this.
- VII.
- What are the requirements of communication system associated with multimedia applications?
 - Describe channel encoding.
- VIII. Write short notes on:
 - Video conferencing
 - High speed modems