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TIT - 012

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0510

Roll No.

B. Tech.

(SEM. VIII) EXAMINATION, 2008-09

MULTIMEDIA SYSTEM

Time : 3 Hours]

[Total Marks : 100

1 Attempt any four parts.

5×4

- (a) Define the term Multimedia. List down four software used in multimedia industry with their applications.
- (b) What are different types of requirements for multimedia computer system that can support multimedia applications in industries.
- (c) How is multimedia used in business communication? Explain with the help of an example.
- (d) What is multimedia authoring? Explain metaphor presentation in context of multimedia authoring.
- (e) An analog audio signal has a dynamic range of 40 db. Determine the magnitude of the quantization noise relative to the minimal signal amplitude, if the quantizer uses
 - (i) 6 bits
 - (ii) 10 bits

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[Contd...

- (f) How does the process of raster scanning create an image on monitor? How can interlacing be useful for displaying steady images on slower monitors?

2 Attempt any **two** parts. 10×2

- (a) What features of MIDI make it suitable for multimedia applications? Briefly justify your answer. What are the drawbacks of MIDI?
- (b) Describe the process of video digitization. How does it help in multimedia presentation?
- (c) How is MIDI used within the MPEG-4 audio compression standard?

3 Attempt any **two** parts. 10×2

- (a) (i) Compare lossy and lossless data compression.
- (ii) Illustrate JPEG image preparation with suitable example.
- (b) Briefly state the LZW compression algorithm and show how would you use it to encode the following stream of characters :

MYMEMEMYMO

You may assume that single character tokens are coded by their ASCII codes, as per the original

LZW algorithm. However, for the purpose of the solution you may simply output the character rather than the ASCII value.

- (c) Encode the following set of tokens using Huffman coding.

BABACACADADABBCBABEBEDDABEEEEBB

4 Attempt any **two** parts. 10×2

- (a) Briefly discuss that how Nyquist's Sampling Theorem affects the quality of the data and the form in which sampling effects manifest themselves in the actual data for the following media types :
- (i) graphics
- (ii) images
- (iii) video
- (b) Explain the process of video capturing and digitization.
- (c) Discuss with the help of suitable examples/ diagram in context to digital audio.
- (i) Sampling variables
- (ii) Silence compression
- (iii) Loss less compression of sound

