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TIT-12

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

PAPER ID : 0153

Roll No.

B. Tech.

**(SEM. VII) EXAMINATION, 2008-09
MULTIMEDIA SYSTEMS**

Time : 3 Hours]

[Total Marks : 100

- Note :
- (1) Attempt all questions.
 - (2) All questions carry equal marks.
 - (3) Be precise in your answers.
 - (4) No second answer book will be provided.

I Attempt any **four** parts of the following : 5×4=20

- (a) What is multimedia? Discuss its various elements.
- (b) What are the memory requirements of multimedia?
- (c) Explain the working of a page based authoring tool.
- (d) What do you understand by sound capturing?
Explain with a suitable example.
- (e) Discuss the role of multimedia technology in the field of education and entertainment.

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[Contd...

- (f) For a display system the display area is 12×10 inches and a resolution of 100 dpi and a colour depth of 16 bits. Calculate the following:
- Size of frame buffer
 - Aspect ratio

2 Attempt any **four** parts of the following: $5 \times 4 = 20$

- Explain the digital signal processing of sound.
- How one can do the audio recording in Multimedia system? Work some of the audio file formats.
- What is MIDI? How is it different than digital audio?
- What are the major steps involved in capturing audio in windows environment?
- How much space will a 1 minute speech take, if sampling rate 44 kHz and sample size is 16 bits?
- How is embedded an audio into an HTML file and java applet file?

3 Attempt any **two** parts : $10 \times 2 = 20$

- (a) A text message contains five distinct symbols and their frequencies in the text are given below:

Symbol : A B C D E

Frequency : 15 7 6 6 5

Construct the Huffman tree and generate the Huffman code for each symbol.

(b) Write short notes on:

- Finite context modelling
 - Sliding Window Compression.
- (c) Explain the lossless and lossy compression taking suitable examples. Compare them. Lossless data compression make some files longer. Do you agree? (Comment).

4 Attempt any **two** parts : $10 \times 2 = 20$

- What is speech synthesis? How is it performed?
 - Explain the process of encoding the speech.
- What are the steps involved in connecting an analog audio into digital? What is role of Nyquist theorem?
- How can we achieve image compression using GIF (Graphics Interchange format)? Explain.

5 Attempt any **two** parts : $10 \times 2 = 20$

- What is bitmap and how is it different from vector drawing?
 - Explain JPEG compression in brief.
- Explain how video compression is achieved using MPEG.
- What is open GL and where is it useful?
 - Explain different aspects of video signal representation.

