Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B. Tech (EEE)/SEM-7/IT-711/2011-12

2011
MULTIMEDIA SYSTEMS

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   i) SNR (dB) =
      a) 4n b) 5n
      c) 6n d) 8n.

   ii) Interlacing is related with
      a) RGB colour model b) Character spacing
      c) Refresh rate d) None of these.

   iii) Anti-aliasing is related with
      a) RGB colour model b) Character spacing
      c) Refresh rate d) None of these.

   iv) The difference between the predicted value & the current value is coded with a single bit in
      a) DPCM b) Delta modulation
      c) ADPCM d) All of these.

v) NTSC is a

a) Digital video standard

b) Analog video standard

c) Audio file standard

d) Text file standard.

vi) Histogram stretching is a process of

a) Image recognition b) Image fusion

c) Image enhancement d) None of these.

vii) Kerning is related with

a) RGB colour model b) Character spacing

c) Refresh rate d) None of these.

viii) YUV colour model is a

a) Additive b) Subtractive

c) Orthogonal d) None of these.

ix) Huffman Coding scheme is an example of

a) Hybrid coding b) Source coding

c) Entropy encoding d) None of these.

x) Direct – To-Home (DTH) service is a perfect example of

a) Multimedia b) Hypermedia

c) Virtual reality d) Interactive TV.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. a) Write down the different features of Multimedia.

b) Write down the differences between Raster scan & Vector scan. 2 + 3

3. a) Write down Nyquist Sampling theorem.

   b) What do you mean by Quantization ? What is Quantization error ? 2 + 3

4. Write down any algorithm for video compression.

5. Critically comment on CDROM technology.

6. Write in brief abut I-frame and P-frame coding. What do you mean by temporal and frequency masking ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What do you mean by Additive & Subtractive colour models ? Describe the models. 5

   b) Discuss advantages & disadvantages of Sub-band coding. 5

   c) Write down the Norman's seven-stage of action. 5

8. a) Explain DPCM encoding scheme for audio signal. 5

   b) What do you mean by Multimedia Authoring ? 5

   c) What do you mean by morphing ? Explain temporal & spatial redundancy. 2 + 3

9. a) Explain the working principles of k-d tree & R-tree. 5

   b) What is MIDI ? Describe MIDI messages. 1 + 4

   c) Explain the working principle of LCD television. 5

10. Give the architecture of JPEG encoder and explain. What are the component modes of JPEG ? What do you mean by quantization noise ? What is the relation between RGB and CMYK colour model ? Write down about the architecture of Vector display. What is raster scan principle ?

3 + 3 + 3 + 3 + 3

11. What do you mean by animation ? What are the differences between tweening and morphing ? What are the different modes of controlling animation ? What is an authoring tool for multimedia ? Write down different authoring tool for design. 3 + 3 + 3 + 3 + 3

12. Write short notes on any *three* of the following : 5 × 3

    a) HTML

    b) Virtual Reality

    c) Video on Demand

    d) Rich-text format

    e) Digital Camera and its working principle

    f) Components of MIDI messages

    g) Shneiderman's Eigth Golden rules and Norman's Seven stages of Development

    h) Multimedia Database.