Name : ……………………………………………………

Roll No. : …………………………………………………

Invigilator's Signature : …………………………………

CS/B.Tech(IT)/SEM-6/IT-605/2011

2011

MULTIMEDIA TECHNOLOGY AND APPLICATION

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)   What is DCT ?

       a)   Discrete continuous transform

       b)   Discrete cosine transform

       c)   Domain continuous transform

       d)   None of these.

    ii)   What is NTSC ?

       a)   National Television Systems Committee

       b)   National Transmission System Committee

       c)   National Television Systems Conference

       d)   None of these.

iii) What is JPEG ?

    a)   Joint-Photographic Experts Group

    b)   Joint-Picture Experts Group

    c)   Joint-Photographic Execution Committee

    d)   None of these.

iv) Huffman Encoding scheme is an example of

    a)   Entropy Encoding   b)   Source Encoding

    c)   Hybrid Encoding   d)   None of these.

v) The Synchronization reference model has

    a)   4 layers   b)   3 layers

    c)   6 layers   d)   none of these.

vi) Block size required for the computation of DCT is

    a) $8 \infty 8$ b) $64 \infty 8$

    c) $64 \infty 64$ d)   None of these.

vii) MIDI stands for

    a)   Musical Instrument Digital Interface

    b)   Musical Interaction Digital Interface

    c)   Musical Interface Digital Instrument

    d)   None of these.

viii) DTD stands for

    a)   Document Type Definition

    b)   Definition Type Document

    c)   Definitive Type Definition

    d)   None of these.

ix) MPEG stands for

    a) Moving Picture Experts Group

    b) Motion Pictures Experts Group

    c) Moving Photographic Expert Group

    d) None of these.

x) SGML means

    a) Standard Generalized Markup Language

    b) Standard Group Markup Language

    c) Standardized General Markup Language

    d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What are different types of MIDI messages ? What are the components of MIDI ?

3. Define sound sampling resolution and quantization error. An uncompressed CD quality audio signal is sampled at the rate of 44.1 kHz is quantized with 16 bits per sample. What is the storage space required for recording of this signal for 2 mins in a magnetic storage media ?

4. What are the limitations of CD-ROM technology ? Give a brief overview of CD-ROM architecture.

5. What do you mean by animation ? What is tweening ? What is the difference between tweening and morphing ? What are the different methods of controlling animations ?

6. What is morphing ? Differentiate between morphing and shape tweening.   2 + 3

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following. 3 × 15 = 45

7. How does a device dependent colour model differ from device independent colour model ? What is colour space ? What is colour wheel ? Explain with appropriate figure. How does display of an image depend upon the display unit ?

5 + 2 + 2 + 6

8. What are different image file formats ? Explain Discrete Cosine Transformation. Why is DCT useful in compression.

4 + 7 + 4

9. What do you mean by CODEC ? What is the difference between intraframe and interframe compressions ? What do you mean by I-frame, B-frame and P-frame in context of video compression ? Explain JPEG compression technique.

1 + 2 + 6 + 6

10. A magnetic disc pack has 12 surfaces out of which 10 are recordable. Each surface has 50 tracks and each track is divided into a number of sectors. If the total capacity of the disc pack is 50000 k bytes and the capacity of each sector is 512 bytes, then
    a) how many cylinders are present in the disc pack ?
    b) how many sectors are present on each track ? What is the difference between bitmap graphics and vector graphics ? Calculate the file size for 80 minutes audio clips with 60 kHz. and 6 bit sampling resolution for telephone quality sound and CD quality sound. What are the different types of animations ? Explain with proper diagram. 2 + 2 + 3 + 3 + 5

11. Write short notes on any *three* of the following : 3 × 5
    a) ODA
    b) HTML
    c) MIDI
    d) Alpha channel
    e) Video on Demand.