MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : IT-702

MULTIMEDIA

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) NTSC is a/an

a) Digital Video Standards

b) Analog Video Standards

c) Audio File Standards

d) Image File Standards.

ii) Raster scanning starts from

a) top left corner of the screen

b) top right corner of the screen

c) bottom left corner of the screen

d) bottom right corner of the screen.

iii) Synthesizer is/an

a) Protocol b) Cable

c) Instrument . d) none of these.

iv) RLE stands for

a) Reverse Line Encoding

b) Run Length Encoding .

c) Run Line Encoding .

d) none of these.

v) Which one is the Unicode standard ?

a) UTF-8 b) UCS-8

c) UTF-32 d) UCS-40.

vi) What is the aspect ratio of HDTV ?

a) 4 : 3 b) 3 : 2

c) 9 : 5 d) 16 : 9.

vii) Device independent colour model is

a) CMYK b) RGB

c) CIE L*a*b* d) LASER.

viii) CD-ROM operates on

a) 1 mode b) 2 modes

c) 3 modes d) 4 modes.

ix) Which one is the audio file format ?

a) PNG b) AIFF

c) RTF d) MKV.

x) Morphing means

a) Changing position b) Changing shapes

c) Changing colour d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Compare additive with subtractive colour models. What is relation between RGB an CYMK colour model ? 4 + 1

3. What is mark-up ? Discuss the difference between descriptive mark-up and procedural mark-up with proper example. 1 + 4

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4. a) State the Nyquist sampling theorem. A communication channel can carry signal with frequency from 20 Hz to 20 kHz. Determine the sampling frequency.

b) A 15-inch monitor has aspect ratio 4 : 3 and pixel addressability of monitor is 800 × 600. What is the resolution of the monitor ? (1 + 2) + 2

5. What are the MIDI messages ?

6. What is morphing ? Write down the difference between morphing and shape tweening. 2 + 3

GROUP – C

(Long Answer Type Questions)

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

7. a) Analyze with proper diagram how the HSV hexacone is derived from a RGB cube. What is colour gamut ? Discuss about the colour gamut of different colour models.

b) What are the advantages of using Luma-Chroma principle in context of transmission of video signals. (8 + 2 + 2) + 3

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8. a) 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

   i) How many cylinders are present in the disc pack ?

   ii) How many sectors are present on each track ?

   iii) 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.

   b) Differentiate between CAV and CLV.

   c) What do you mean by CODEC ? What is the difference between intraframe and interframe compression ? (1 + 1 + 3) + 5 + (2 + 3)

9. a) A series of messages is to be transferred from one computer to another computer. The message comprises the characters from *A* to *E*. The probability of each characters are as follows :

   A = 0.35

   B = 0.17

   C = 0.17

   D = 0.16

   E = 0.15

   Using the Huffman coding find out the Huffman tree and also calculate the codeword set.

   b) What is animation ? What are the different types of animation ? Explain onion skinning with diagram.

   (4 + 4) + (2 + 2 + 3)

10. a) What is the purpose of synchronization ?

    b) What is quad tree ? Write the structure of K-d tree.

c) Consider the following spatial information.

Location	*Coordinate (XVal, YVal)*
B	(25, 45)
D	(15, 35)
T	(50, 10)
M	(80, 14)
N	(10, 09)

Insert the above values according to the given sequence in an initially empty quad tree and clearly show the intermediate states. 4 + (2 + 2) + 7

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

a) Hypertext & hypermedia

b) Story Board

c) I-Frame, B-Frame and P-Frame

d) OMF

e) Multimedia database.