

**CS/B.TECH/CSE/EVEN/SEM-6/CS-605C/2015-16**



**MAULANA ABUL KALAM AZAD UNIVERSITY OF  
TECHNOLOGY, WEST BENGAL**

**Paper Code : CS-605C**

**MULTIMEDIA TECHNOLOGY**

**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 × 1 = 10

i) RLE stands for

- a) Reverse Line Encoding
- b) Run Length Encoding
- c) Run Line Encoding
- d) None of these.

ii) MIDI is a/an

- |             |                   |
|-------------|-------------------|
| a) Protocol | b) Device         |
| c) LAN      | d) None of these. |

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iii) PAL is a/an

- a) Digital Video Standard
- b) Analog Video Standard
- c) Audio File Standard
- d) Image File Standard.

iv) Interlacing

- a) provides a flicker-free image without increasing bandwidth
- b) provides a flicker-free image by increasing bandwidth
- c) adjust the color contrast
- d) none of these.

v) SGML stands for

- a) Structured General Medium Language
- b) Standard Generalized Markup Language
- c) Standard Generalized Medium Language
- d) None of these.

vi) 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) none of these.

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vii) Pixelation means

- a) individual pixel becomes visible
- b) increasing image length
- c) increasing bit depth
- d) increasing image width.

viii) Huffman encoding is a/an

- a) entropy encoding      b) source encoding
- c) hybrid encoding      d) none of these.

ix) Block size in block preparation step of JPEG compression is

- a)  $4 \times 4$                       b)  $8 \times 8$
- c)  $16 \times 16$                       d)  $64 \times 64$ .

x) Purpose of DCT is to transform the block

- a) from frequency domain to spatial domain
- b) from spatial domain to frequency domain
- c) both the frequency and spatial domain
- d) none of these.

**GROUP - B**

**( Short Answer Type Questions )**

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

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

b) A 15 inch monitor has aspect ratio 4 : 3 and resolution 85 dpi. Calculate the pixel addressability of the monitor.       $(1 + 2) + 2$

3. a) What are different types of colour model ?

b) What are additive and subtractive colour model ?       $2 + 3$

4. Explain the term 'hypertext' and 'hypermedia'. What is kerning ?       $4 + 1$

5. What is animation ? What are the types of animation ? Differentiate between morphing and shape tweening.       $1 + 1 + 3$

6. What are the MIDI messages ? Explain the advantages and disadvantages of MIDI over digital audio.       $2 + 3$

**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Explain the term 'luminance', 'hue', 'saturation' to specify the colour characteristics of an image.
- b) Describe the steps of JPEG image compression.
- c) Write down the names of three popular image file format.  $3 + 9 + 3$
8. a) What do you mean by CODEC ? What is the difference between intraframe and interframe compression ?
- b) What do you mean by I-frame, B-frame and P-frame in the context of video compression ?
- c) Why compression is required ? What is the difference between lossless and lossy compression ?  $(1 + 2) + 6 + (2 + 4)$

9. a) What is the purpose of synchronization ? Describe the synchronization accuracy specification factors.
- b) Compare bitmap image and vector image.
- c) A series of messages is to transferred between two parties. The messages comprise the character from A to E. Relative frequency of occurrence of each character is : A = 0.35, B = 0.17, C = 0.17, D = 0.16 and E = 0.15. Using the Huffman coding derive the Huffman tree and calculate the codeword set.  $(3 + 4) + 3 + 5$
10. a) Discuss the fundamental characteristics of sound. What is note and tone ?
- b) Describe briefly the display system technique and raster scan method.
- c) Differentiate between CAV for hard disks and CLV for CDs. Describe Mode I and Mode II of CD-ROM.  $(3 + 2) + (3 + 2) + (3 + 2)$

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

- a) Open Document Architecture
- b) Video on Demand
- c) CCD
- d) Quality of Service
- e) k-d tree.

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