

CS/B.Tech/IT/Odd/Sem-7th/IT-702/2014-15

IT-702

MULTIMEDIA

Time Allotted: 3 Hours

Full Mar

The questions are of equal value.

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)

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- (vi) DCT stands for

 - (A) Discrete cosine transformation
 - (B) Direct colour transformation
 - (C) Differential coding transformation
 - (D) none of these

- (vii) Pixel depth will generally be expressed as

 - (A) either 8 bit, 16 bit or 24 bit
 - (B) either 32 bit, 48 bit or 64 bit
 - (C) both (A) and (B)
 - (D) none of these

- (viii) CD-ROM operates on
(A) 1 mode (B) 2 mode
(C) 3 mode (D) 4 mode

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GROUP B
(Short Answer Type Questions)

Answer any *three* questions. $3 \times 5 = 15$

2. (a) State the Nyquist sampling theorem. A communication channel can carry signal with frequency from 20 Hz to 20 kHz. Determine the sampling frequency. 1+2
- (b) A 15-inch monitor has aspect ratio 4:3 and resolution 85 dpi. What is pixel addressability of monitor? 2
3. What is colour gamut? What is anti-aliasing? What is Gamma? 1+2+2
4. What is animation? What are the types of animation? Explain keyword and tweening with diagram. 1+1+3
5. Compare NTSC, PAL and SECAM systems of standard for television. What is HDTV? 3+2
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* questions. $3 \times 15 = 45$

7. (a) Explain the term 'luminance', 'hue', 'saturation' to specify the colour characteristics of an image. 3
- (b) Describe the steps of JPEG image compression. 9
- (c) Write down the names of three popular image file format. 3
8. (a) What do you mean by CODEC? What is the difference between intraframe and interframe compression? 1+2

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(b) What do you mean by I-frame, B-frame and P-frame in the context of video compression? 6

(c) Why compression is required? What is the difference between lossless and lossy compression? 2+4

9. (a) What is the purpose of synchronization? Describe the synchronization accuracy specification factors. 3+4

(b) Compare bitmap image and vector image. 3

(c) A series of messages is to be 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. 5

10.(a) Discuss the fundamental characteristics of sound. What is note and tone? 3+2

(b) Describe briefly the display system technique and raster scan method. 3+2

(c) Differentiate between CAV for hard disks and CLV for CDs. Describe Mode I and Mode II of CD-ROM. 3+2

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.