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No. of pages: 02

Date

SIXTH SEMESTER

B.E. (IT)

END SEMESTER EXAMINATION, May-2017

IT-311: MULTIMEDIA & APPLICATIONS

Time: 3:00 Hrs.

Max. Marks: 70

Note: Attempt ANY FIVE questions. Q1 is compulsory.

All questions carry equal marks.

Assume suitable missing data, if any

Q1. Answer the following:

- (a) What is Run length encoding. (3)
- (b) RGB model has a larger gamut than CMYK. (3)
- (c) What is entropy? Explain Shannon formula. (3)
- (d) Static Huffman encoding requires knowledge of text prior to encoding. (3)
- (e) Graphics is different from images. (2)

- Q2. (a)** What is Multimedia? What are the various requirements for creating a framework for multimedia system. (7)
- (b)** Discuss JPEG image compression explaining in detail the process of DCT and quantization. (7)

- Q3. (a)** What is a microphone? List the various types of microphones available. (7)
- (b)** What do you mean by virtual reality? Discuss its areas of applications. (7)

- Q4. (a)** Derive the Huffman code tree using Dynamic Huffman Encoding for the word "EVERYONE" to be transmitted. Also specify the code-word for every character in the above mentioned text. (7)
- (b)** Code the string "GONE#" using Arithmetic Coding given the probability distribution of symbols as: G=0.2, O=0.4, N=0.1, E=0.2, #=0.1. (7)

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- Q5. (a)** Use the LZ-77 algorithm to encode the string "abracadabra". (7)
- (b)** How is LZ-78 better than LZ-77? Explain using an example of your choice. (7)

- Q6. (a)** What is MIDI? Explain its connections and various messages using a block diagram. (7)
- (b)** Explain MPEG compression format and its various extensions. (7)

- Q7. (a)** Write short notes on the following: (3.5*2=7)
- i. Animations
 - ii. Multimedia Architecture
- (b)** Differentiate between the following: (3.5*2=7)
- i. CRT and LCD monitors
 - ii. GIF and TIFF compression

Note: Attempt any 5 questions.
Question 1 is compulsory.
Assume missing data, if any.
All questions carry equal marks.

Q1. Reason out the following:

- a. Hypertext links independent documents. (2)
- b. Digital Copyright is a protection of author's original work. (3)
- c. Lossless compression is used for compressing text. (3)
- d. HSB color model is device independent model. (3)
- e. Multimedia is an integration of various elements. (3)

Q2. a. What is meant by a multimedia presentation? Describe some of its characteristics. (8)

b. What is LZW Compression? How is a dictionary used and initialized in LZW scheme? (6)

Q3. a. Explain diagrammatically the various steps required in JPEG compression. (7)

b. Discuss the various layers of MPEG-1 standard. How video and audio encoding is done in MPEG. (7)

Q4. a. Derive the Huffman code tree using Dynamic Huffman Encoding for the word "MISSISSIPPI" to be transmitted. Also specify the code-word for every character in the above mentioned text. (8)

b. A text string contains 7 different characters having the following frequency of occurrence: A=35, M=25, C=55, E=15, P=10, D=5, L=5 and Q=6. (6)

- i. Use static Huffman coding to derive the suitable set of code-words.
- ii. Draw the corresponding Huffman tree for the same.
- iii. Show the codes for input string "AEMPAALEQ".

Q5. a. What is Animation with respect to multimedia? Explain the different types of animations. (7)

b. What is MIDI connection? What are the different messages used in MIDI. Explain with a suitable diagram. (7)

Q6. a. What is an Arithmetic Coding compression technique? What makes it different from Huffman compression? (6)

b. Code the string "IRAN" using Arithmetic Coding given the probability distribution of symbols as: O=0.1, D=0.1, T=0.1, N=0.1, I=0.2, R=0.1, A=0.1, L=0.1, Y=0.1. (8)

Q7. a. Differentiate between the following (any TWO): (7-3.5 * 2)

- i. Source and Transform Encoding
- ii. Luminance and Chrominance
- iii. Omni-directional and Bi-directional Microphone

b. Write short notes on the following (any TWO): (7-3.5 * 2)

- i. SGML
- ii. Unicode Standards
- iii. Multimedia Document
