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(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 113852   Roll No.

B.TECH.

Theory Examination (Semester-VIII) 2015-16

MULTIMEDIA SYSTEM

Time : 3 Hours   *Max. Marks : 100*

Section-A

Q.1. Attempt all parts. All parts carry equal marks. Write answer of each part in short.   **(2×10=20)**

(a) What is meant by the terms multimedia and hypermedia?

(b) Discuss why lossy data compression is sometimes preferred over lossless.

(c) What is meant by the terms static media and dynamic media? Give two examples of each type of media.

(d) Why file or data compression is necessary for multimedia activities?

(i) Compare the contrast JPEG and MPEG.

(j) Write a short note on characteristics of sound.

Section-B

Q.2. Attempt any five questions from this section.

(10×5=50)

(a) What are the key differences among I-Frames, P-Frames and B-Frames?

(b) What motion compensation is used for in MPEG video compression? Explain in brief.

(c) What is meant by the terms frequency and temporal masking of two or more audio signals? What is the cause of this masking?

(g) What is multimedia document architecture? What is its relevance in this era of internet? Explain in brief.

(h) With the help of an example discuss Huffman coding as text compression technique.

Section-C

Attempt any two questions from this section. **(15×2=30)**

Q3. Given the following string as input: ABRACADABRA with the initial dictionary below, encode the sequence with the LZW algorithm, showing the intermediate steps

Index	Entry
1	A
2	B
3	C
4	D
5	R

Q4. Consider the following DNA fragment:

...GTACCCGACACTTCCGTCCCCTTC... Assume that the frequencies of symbols in the rest of the sequence are the same as in this fragment. Estimate the probabilities of each symbol {A, G, T, C} and hence derive the Huffman code for each. Estimate the average number of bits per symbol required to encode the sequence using Huffman code under these circumstances.

Q5. Write Short Note on:

(a) Arithmetic encoding

(b) Run length encoding

(c) LZ and LZW

(4)