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

**PAPER ID : 2935**　Roll No. ☐☐☐☐☐☐☐☐☐

# B.Tech.

## (SEM. VIII) EVEN THEORY EXAMINATION 2012-13

## MULTIMEDIA SYSTEMS

*Time : 3 Hours*　　　　　　　　　*Total Marks : 100*

**Note :–** (1)　Attempt **all** questions.

(2)　Make suitable assumptions wherever necessary.

1.　Attempt any **two** parts of the following :　　　**(10×2=20)**

(a)　Define a multimedia system. How might multimedia be used to improve the lives of its users ? How might it influence users in negative ways ?

(b)　You are a multimedia team leader given six months to produce a multimedia project to demonstrate your company's capabilities. Write a brief outline describing the timeline and the possible costs associated with the four stages of the project (you do not have to estimate actual amounts, just estimate percentage of budget). Justify your estimates.

(c)　Define the authoring. What are the various functions provided by most of the authoring software ? Describe.

2.　Attempt any **two** parts of the following :　　　**(10×2=20)**

(a)　What are the various file formats used for multimedia components ? Compare and contrast the features of any two multimedia development software.

(b) Discuss the differences among multimedia, interactive multimedia, hypertext and hypermedia. Give the applications of hypertext in e-learning.

(c) Define digital audio and discuss its attributes, including how sound is sampled and sampling parameters.

3. Attempt any **two** parts of the following : (10×2=20)

(a) Consider the text string "DI\$DID\$DIDI\$DIDA\$DIDI". Show all the steps of LZ 78 compression and decompression including the dictionary formation.

(b) (i) In a quadraphonic (4 channel) audio system, signals are sampled at 10 kHz and stored as 6 bits values :

(I) Calculate the required digital bandwidth.

(II) What is the highest frequency of the analog signal that can be reproduced from digitized signal ?

(ii) Explain how compression is achieved using the GIF standard ? Is it lossy or lossless?

(c) (i) Explain the update procedure of adaptive Huffman coding algorithm.

(ii) Write down the application of Huffman coding in text compression and audio compression.

4. Attempt any **two** parts of the following : (10×2=20)

(a) What are the various types of frames in MPEG ? How are these frames encoded ? Explain.

(b) What do you mean by loss less compression of sound ? Discuss any compression technique of loss less compression of sound.

(c) Discuss the following with suitable diagrams/examples in context to digital audio :

    (i)    Sampling rate

    (ii)   Sampling resolution

    (iii)  Bit rate

    (iv)  Quantization Error.

5.    Attempt any **two** parts of the following :      **(10×2=20)**

    (a)    Discuss the difference between bitmap and vector graphics. Describe five different graphics elements you might use in a project, for example, the background, buttons, icons, or text. Would you use a vector tool or a bitmap tool for each element ? Why ?

    (b)    What is cel animation ? Define the capabilities of computer animation and the mathematical techniques that differ from traditional cel animation.

    (c)    Write notes on the following :

        (i)    MHEG standard video streaming on net

        (ii)   Recent development in multimedia.