Subject: MULTIMEDIA SYSTEMS

Time: 3 Hours **Max. Marks: 100**

JUNE 2011

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. GIF format uses n bit standard value where n is.

(A) 4 bits **(B)** 8 bits
(C) 16 bits **(D)** 32 bits

b. Two popular editing and authoring tools are:

(A) hierarchical metaphor and flash.
(B) macro media director and flash.
(C) slideshow metaphor and macro media director.
(D) hierarchical metaphor and macro media director.

c. PAL uses a color model with a band width of

(A) 8 MHz channel **(B)** 6.25 MHz channel
(C) 4.5 MHz channel **(D)** 10 MHz channel

d. A surface appearing black

(A) reflects all the incident colors
(B) reflects all the incident colors except black.
(C) reflects none
(D) reflects only black and absorbs the rest.

e. An equal combination of red, green and blue colors produces the color:

(A) white **(B)** cyan
(C) magenta **(D)** yellow

f. A video signal has a resolution of 800*600 pixels and the picture is scanned times per second. The data rate produced is, if the picture uses 256 different colors.

(A) 1.44 megabits per second **(B)** 1.44 megabytes per second
(C) 0.48 megabits per second **(D)** 0.48 mega bytes per second

g. The chrominance resolutions of Quadrature Common Intermediate Format (QCIF) are.

(A) 352×288 pixels **(B)** 176×144 pixels
(C) 88×72 pixels **(D)** 288× 352 pixels

h. MPEG compression standards introduced as additional types of frame over JPEG. This frame is

(A) I frame **(B)** P frame
(C) B frame **(D)** R frame

i. The requirement of network bandwidth for MPEG-1 video is of the order of

(A) 32 kbps **(B)** 20 Mbps
(C) 640 kbps **(D)** 1.5 Mbps

j. MP3 compression standards uses for telephone quality, a compression ratio of x and a bandwidth of y where x and y are

(A) 96:1 and 3 kHz **(B)** 24:1 and 7.5 kHz
(C) 16:1 and 15 kHz **(D)** 25:1 and 11 kHz

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Briefly explain multimedia authoring tools: abode premiere, macro media director and macro media flash. **(8)**

b. What do you understand by pixel? What do you understand by color look up table (LUT)? Explain how do you design a color look up table. **(8)**

Q.3 a. Name three color models widely used in video presentations. Briefly explain these color models. **(8)**

b. Explain the process of interlaced scanning of video signal. Give the details of the signal for NTSC scan line. **(8)**

Q.4 a. What are the advantages of adaptive Huffman coding compared to the original Huffman Coding algorithm? **(6)**

b. Explain the two algorithms above with suitable examples. **(1**

Q.5 What are the different modes used in JPEG standard? Explain each mode in detail with suitable examples. **(2+14)**

Q.6 a. Distinguish between inter frame coding and intra frame coding as applied to H.261 video compression standard. **(4)**

b. MPEG-2 defines five different prediction modes. List out these modes and explain briefly about each mode. **(12)**

Q.7 a. What are the improvements that were brought into MPEG-7 and MPEG-21 over and above the features of the MPEG-4 standard? **(8)**

b. Compare voice object plane (VOP) based coding with frame based coding used in MPEG-4 compression standard. **(8)**

Q.8 a. ATM supports various types of video bit rates. List these and explain briefly. **(8)**

b. Explain real time transport protocol (RTP) and resource reservation protocol (RSVP) as applied to quality of service (QoS) of multimedia data. **(8)**

Q.9 a. Describe the two modes: CAV and CLV of recording data on a CD-ROM. **(8)**

b. Write a brief note on computer assisted animation. **(8)**