Code: AT65/AT116   **Subject: MULTIMEDIA SYSTEMS**

AMIETE – IT (Current & New Scheme)

Time: 3 Hours   **DECEMBER 2015**   Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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. Which of the following is not a video file extension?
   (A) JPG   **(B)** AVI
   (C) MP4   **(D)** MOV

b. Digitization process includes
   (A) Sampling   **(B)** Quantization
   (C) Sampling & Quantization **(D)** Digitize the signals

c. The MIDI interface includes
   (A) Synthesizer   **(B)** Sequencer
   (C) Keyboard controller   **(D)** All

d. The following is not a color model in Video.
   (A) RGB   **(B)** YIQ
   (C) YUV   **(D)** YCbCr

e. The MPEG-1 layer does not support
   (A) I-pictures   **(B)** B-picture
   (C) P-pictures   **(D)** D-picture

f. _____ scan has a good chance of concentrating long runs of zeros
   (A) raster   **(B)** morton
   (C) vertical   **(D)** zigzag

g. MP3 as an extension of a _____ file.
   (A) Sound   **(B)** Music
   (C) Audio   **(D)** All of these

h. Which of the following is a coding technique used in vocoders?
   (A) Huffman   **(B)** CELP
   (C) Run-length   **(D)** None of these

i. Which of the following is a lossy compression technique?
   (A) Dictionary Based Coding **(B)** Huffman Coding
   (C) Adaptive Huffman Coding **(D)** Karhunen – Loeve Transform

j. The aspect ratio of HDTV is _____.
   (A) 4:3   **(B)** 16:9
   (C) 3:4   **(D)** 9:16

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

Q.2 a. Define a multimedia system. Describe about the different components of Multimedia.   **(2+3)**

   b. Discuss the method of accomplishing Animation in Flash.   **(5)**

   c. Define VRML. Write short notes on VRML 1.0 and VRML 2.0.   **(3+3)**

Q.3 a. Describe the color models YUV, YIQ and YCbCr used to describe the colors in video.   **(3+3+3)**

   b. Write the advantages of digital representation of video.   **(3)**

   c. Write short note on NTSC video standard.   **(4)**

Q.4 a. What do you understand by Huffman coding? What is the principle in generating the Huffman code?   **(3+5)**

   b. Differentiate between DPCM and ADPCM.   **(2+2)**

   c. What is MIDI? Discuss the basic MIDI message structure.   **(2+2)**

Q.5 a. What is the significance of JPEG standard? Describe any two modes that JPEG standard support.   **(4+4)**

   b. Define Discrete Cosine Transform (DCT) and Discrete Wavelet Transform (DWT). List out the different characteristics of DCT.   **(4+4)**

Q.6 a. Explain the characteristic of data stream used by H.261 and H.263.   **(4+4)**

   b. Explain various parts of the MPEG-1 standard. Describe the MPEG-1 video standard mentioning the roles of I-,P- and B- frames.   **(4+4)**

Q.7 a. Define MPEG-21 and its various key elements.   **(3+5)**

   b. Distinguish between channel vocoder and formant vocoder by briefly describing each one of them.   **(4+4)**

Q.8 a. When should RTP be used and when should RTSP be used? Is there any advantage in combining the protocols?   **(2+2)**

   b. State any four parameters on which Quality of service for multimedia depends.
                                                                            (4)

   c. Explain MP3 coding technique with a block diagram.   **(4+4)**

Q.9 a. What are the various techniques of animation in multimedia? Explain principles of animation.   **(4+4)**

   b. Describe the working principle of encoding digital data on a CD Surface. Differentiate between CD-R and CD-RW.   **(4+4)**