ROLL NO. _____

Code: AT65/AE132/AT116 **Subject: MULTIMEDIA SYSTEMS**

AMIETE – ET/IT (Current & New Scheme)

December - 2017

Time: 3 Hours **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. A 640×480 24-bit colour image would require a storage of
(A) 675.6 KB **(B)** 593.6 KB
(C) 843.6 KB **(D)** 921.6 KB

b. What does READ stand for?
(A) Redundancy Expert Address Designate
(B) Reverse Element Address Designate
(C) Relative Element Address Designate
(D) Reverse Expert Address Designate

c. The MIDI interface includes
(A) keyboard controller **(B)** sequencer
(C) synthesizer **(D)** All of these

d. What does AVI stand for?
(A) Audio Video Interleaved
(B) Audio Voice Interleaved
(C) Audio for Voice on the Internet
(D) Adapted Video for Internet

e. _____ is an action that involves creating the frames to depict the action that happens between keyframes.
(A) Tweening **(B)** Morphing
(C) Both **(A)** and **(B)** **(D)** Inverse kinematics

f. Which of the following is not a lossless compression technique?
(A) Dictionary Based Coding **(B)** Karhunen – Loeve Transform
(C) Adaptive Huffman Coding **(D)** Huffman Coding

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

h. What method of animation creates the in-between frames when you create the start and end points of the animation?
(A) Action script **(B)** Authoring
(C) Tweening **(D)** None of these

i. Multimedia hardware usually includes _____
(A) television and VCRs
(B) microphones and cassette tape recorders
(C) television and camcorders
(D) speakers, a sound board and a CD-ROM drive

j. A_____ can be added to your presentation and then used to go to a variety of locations. For example, a web address and an e-mail address.
(A) menulink **(B)** hyperlink
(C) toollink **(D)** slidelink

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+4)**

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

c. Briefly explain, why we need to have less than 24-bit colour representations (typically down to 8-bit) and why this is sometimes a problem? Give one example where 8-bit colour representation have an advantage in terms of image/video processing? **(4)**

Q.3 a. Explain RGB and CMY(K) color models in images. Is transformation from RGB to CMY(K) possible? Give conversion matrix. **(8)**

b. What is meant by Chroma subsampling? Explain, how it helps in bandwidth reductions? **(8)**

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

b. Describe in detail non-linear quantization of audio signals. **(8)**

Q.5 a. The JPEG standard supports numerous modes. Write about some of the commonly used modes. **(8)**

b. Discuss briefly about Karhunen – Loeve Transform (KLT). **(8)**

Q.6 a. Differentiate between I-Frame and P-Frame and their coding**.** **(8)**

b. Describe the different scalabilities in MPEG 2. **(8)**

Q.7 a. What is the significance of MPEG-21 standard? Discuss the key elements**.** **(8)**

b. What is the significance of MPEG-7? Explain object-based visual coding in MPEG-7 **(8)**

Q.8 a. Differentiate between Vocoders and ADPCM as audio compression techniques. **(8)**

b. Explain in detail the Layer 3 of MPEG audio compression algorithms. **(8)**

Q.9 a. What is Internet telephony? Write down its main advantages over POTS. **(8)**

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