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Question Paper Code : 21421

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Seventh Semester

Electronics and Communication Engineering

EC 2037/EC 706/10144 ECE 35 — MULTIMEDIA COMPRESSION AND COMMUNICATION

(Regulations 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate Serif and Sans serif fonts.

2. How are 21/2 Dimension animations are created?

3. How is reversible variable length code words created?

4. Define signal to mask ratio.

5. Create a dynamic Huffman tree for the text "This is Anna University".

6. Derive the binary form of the following run length encoded AC coefficients:

   (0,6) (0,7) (3,3) (0,–1) (0,0).

7. List the challenges of VOIP.

8. Write down the various Audio CODEC methods available.

9. Define any four quality of service parameters related to multimedia data transmission.

10. Are the TCP receive buffer and the media players client buffer the same thing? if not how do they react?

PART B — (5 × 16 = 80 marks)

11. (a) (i) You are assigned to create an interface that looks good across platforms. What is the difference between images as shown on different machines like Mac, PCs etc. How would you deal with those problems? (8)

(ii) Describe the various output devices available for personal computers and explain how they may be used in multimedia production and delivery? (8)

Or

(b) (i) Compare and contrast MIDI and digital audio. (8)

(ii) Discuss the skill set needed to develop a multimedia project. Also describe how this is different from the other skill sets? (8)

12. (a) (i) Explain MPEG 4 encoder/decoder in detail. (8)

(ii) Explain the principle perceptual coders and also explain how they differ from LPC coders. (8)

Or

(b) (i) With the aid of an example explain how DCT blocks are derived from macro blocks in an I frame. (8)

(ii) Discuss the methodology of achieving higher levels of compression by making the predictor coefficients associated with the ADPCM adaptive. (8)

13. (a) (i) Compare a one dimensional coding scheme with a two dimensional encoding scheme. (8)

(ii) With the aid of the diagram explain how individual 8x8 blocks of pixel values are derived by the image and block preparation stage for a monochrome and RGB image. (8)

Or

(b) (i) Explain the principle of operation of LZ compression algorithm. Assume a dictionary of 16,000 words and an average word length of 5 bits, derive the average compression ratio that is achieved relative to using 7 bit ASCII code word. (8)

(ii) With the help of a diagram identify the five main stages associated with the baseline mode of operation of JPEG and give a brief description of the role of each stage. (8)

14. (a) Discuss in detail about H.323 and Sip network architectures. (16)

Or

(b) Explain SS7 protocol suite and also discuss ISUP call establishment and release in detail. (16)

15. (a) (i) Discuss on any one methodology used to make high quality networked multimedia applications a reality. (8)

(ii) Explain the four main RTP packet header fields. (8)

Or

(b) Write short notes on:

(i) Limitations of Best effort service (5)

(ii) Real time interactive audio and video (5)

(iii) Content distribution networks. (6)
