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Question Paper Code: 59410

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Elective

Electronics and Communication Engineering

15UEC910 - MULTIMEDIA COMPRESSION AND COMMUNICATION

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Which one of the following resource is not necessarily required on a file server? CO1- R
(a) Secondary storage (b) Processor (c) Network (d) Monitor
2. Which image files are a lossy format? CO2- R
(a) GIF (b) MPEG (c) JPEG (d) PNG
3. According to the Nyquist theorem, we need to sample an analog signal _____ times the highest frequency. CO3- R
(a) One (b) Two (c) Three (d) Four
4. The brain of an H.323 protocol is CO4- R
(a) Terminal (b) Gatekeeper (c) Multicast Unit (d) Gateway
5. SSRC is ____ bits long CO5- R
(a) 16 (b) 8 (c) 32 (d) 64

PART – B (5 x 3= 15 Marks)

6. Discuss raster scan principle. CO1- U
7. A discrete source emits one of six symbols for every milli seconds. The symbol probabilities are $1/2$, $1/4$, $1/8$, $1/16$, $1/32$ & $1/32$ respectively. Find the source entropy and information rate. CO2- App
8. Illustrate the I,P and B-frames. CO3- U
9. Describe any four functions of RAS signaling in H.323. CO4- U
10. Mention the protocols for real time interactive applications. CO5- U

PART – C (5 x 16= 80Marks)

11. (a) (i) Discuss the interactive applications over the internet and entertainment applications of multimedia. CO1- U (10)
(ii) Distinguish the continuous media and block-mode media. CO1- U (6)
- Or
- (b) Explain the PCM speech technique. CO1- U (16)
12. (a) Explain the importance of arithmetic encoding algorithm and encode the string with the probabilities of the character “went\$”. The probabilities are: e=0.3, n=0.3, t=0.2, w=0.1, \$=0.1 CO2- App (16)
- Or
- (b) Consider a DMS with seven possible symbols x_i , $i=1,2,\dots,7$ and the corresponding probabilities are $P(x_1)=0.46$, $P(x_2)=0.3$, $P(x_3)=0.12$, $P(x_4)=0.06$, $P(x_5)=0.03$, $P(x_6)=0.02$ and $P(x_7)=0.01$. Apply Huffman coding procedure to find the codeword and verify the properties of that coding technique. Also calculate its efficiency. CO2- App (16)
13. (a) Explain in detail about different coding techniques for audio compression. CO3- U (16)
- Or
- (b) Analyzing the H.261 video encoder and infer the relation to the macroblock and frame formats. CO3- U (16)
14. (a) Explain in detail about architecture and signaling methods used in H.323. Also mention the protocols used with this. CO4- U (16)
- Or
- (b) Explain the network architecture of SIP. Also discuss on how call can be established and released in SIP. CO4- U (16)
15. (a) Explain in detail about RSVP protocol. CO5- U (16)
- Or
- (b) Explain in detail about different streaming techniques for stored audio thus for making best service. CO5- U (16)