

MULTIMEDIA TASKS

1. Normal telephony audio captures analog frequencies up to 3.5KHz and has a digital data rate of 64Kb/s. Explain how this data rate came about, and the basic principles involved, given the range of frequencies to be captured. Your answer should cover both the analog-to-digital conversion process and the final digital encoding used.
2. Define the term data encoding as used in multimedia applications and outline the difference between the following data encoding techniques giving examples in each technique.
 - Entropy encoding
 - Source coding
 - Hybrid coding
3. Distinguish clearly between dialog mode and retrieval mode as used in multimedia applications.
4. Using Huffman technique, construct a binary tree using the following;

$P(A) = 0.171$

$P(B) = 0.031$

$P(C) = 0.057$

$P(D) = 0.092$

$P(E) = 0.274$

$P(F) = 0.052$

$P(G) = 0.042$

$P(H) = 0.130$

$P(I) = 0.149$

$P(J) = 0.002$

5. Briefly explain how the Discrete Cosine Transform Operates, and why is it so important in data compression in Multimedia applications
6. List at least 3 constraints that compression in multimedia is subject to
7. List and explain the steps followed in image compression.
8. Define the following coding scheme. Using this coding method compress the following uncompressed data : ABBBBCCDEFG
 - a) Run-length coding.
 - b) Huffman coding