COMP 5422 Additional Problem Set

1. Given a color represented in RGB color space as (R, G, B)=(1, 0.5, 0.3) what is its representation in the CMY color model?
2. What are the problems of MSE (mean square error) in measuring the image visual quality?
3. Suppose the alphabet is [A, B, C], and the known probability distribution is .
   1. Encode the message ABC by Huffman coding.
   2. If Arithmetic coding is used, what are the lower and higher bounds of the interval after encoding BBB and ABC, respectively.
4. Given the following predictor for audio sample , assume , deduce predict error for the samples as in the table.

.

**Samples**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| 66 | 59 | 70 | 38 | 50 |

1. Suppose we have a 4\*4 image as follows, what is the bit plane 0 of the image?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 1 | 22 | 233 |
| 1 | 1 | 22 | 233 |
| 22 | 22 | 233 | 233 |
| 233 | 233 | 233 | 233 |

1. Given the signal . Please calculate its DCT coefficients F(1) and F(6).