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Faculty of Information Technology
Mid-sem Exam, 2021/2022(2)
Course Name: Electronic devices and circuits (COSC 222)

Instructor: NIZEYIMANA Pierre Celestin — Exam Duration: 1h00
Group : Day — Date : 08/05/2022

INSTRUCTIONS:

- This paper comprises 6 questions
- Be as short as possible and concise

Multimedia Computing / 30 marks

1. How many dots do I need to fit in one "inch" to start seeing a line and not a series of dots.? **/ 5 marks**
   *80 dots in 1 cm equivalent to **200 dots** per inch*
2. What is the pixel depths for a: **/ 5 marks**

a. Black and white image *1 bit*
b. Gray scale image *8 bits*

3. I want to make my picture as a home screen on my laptop and I can only see a truncated picture from my head to knees. What's wrong and how do I make it fully visible? **/ 5 marks**
   The height pixel size of the image is bigger than the height pixel size of the screen, increase the overall pixel size (aka resolution) of the screen
4. Huffman technique assigns shorter codes to more frequent symbols and longer codes to less frequent symbols. For what purpose? **/ 5 marks**
   To reduce storage size, as the total storage is equal to the number of bits used for one symbol code times the number of times the symbol appears.
5. How does **Dithering** produces a color between black and white using only black ink? **/ 5 marks**
   Instead of approximating to zero (black) or one (white) for each value, dithering remembers the error made by approximating and carries it forward to reduce or increase the next value. This allows a mixture of white and black dots creating shading (grey scale) effect.
6. If a tee-shirt appears black inside a room where yellow light alone is shining. What possible colors would you expect the tee-shirt to have when it is taken outside under sunshine? Explain **/ 5 marks**
   The tee-shirt absorb red&green, so outside it will appear:
   a. Blue
   b. Black

<<BEST OF LUCK>>