Multimedia Mid Exam Revision

``````````````````````````````````````````

***Multimedia** means that computer information can be represented through audio, Video and animation in addition to traditional media (Text/Graphics/Images)

***Multimedia System** is a system which is capable of processing multimedia data and applications

***Analog** is a way of present things in the whole format (The whole things continuous)

***Digital** is way of present things in a form of pieces put together

***Pixels** picture elements (Squares)

***Resampling** adding pixel on image

***Pixel Depth** is number of bits used to store 1 pixel

***Primary Colors** Red, Green, Blue (RGB) for the screen and Cyan, Yellow, Magenta, Key (Black) (C, Y, M, K) for printers

***Additive colors** RGB (Red, Green, Blue)

***Subtractive colors** CYMK (Cyan, Yellow, Magenta, Key (Black))

***Compression** m

***Compression techniques** LossLess and Lossy techniques

***LossLess Technique** The original data and the data after compression & decompression are exactly the same (uses for compressing Text or programs files)

***Lossy Technique** (uses for compressing images, video files)

***Dithering** is a way of creating colors the printer doesn't have (error remembering and diffusion)

***DCT** Discrete Cosine Transform is a type of Lossy compression

***IDCT** Inverse Discrete Cosine Transform is the one helps to get back to original picture ( close to it )

Question. What colors are called primary colors and secondary colors of Lights? Why?

**Answer**: **Red, green, and blue** are known as the primary colors of light, The secondary colors of light are **cyan, magenta, and yellow**.

* **Red, green, and blue** are primary key cause they cannot be made with mixtures of other colors

* **cyan, magenta, and yellow** are secondary colors cause they are formed by mixing two primary colors in equal

Question. Explain the principle of
``````````````````````````````````````````

a. Color addition and explain how it is applied to color television

   Answer: **Color addition principles** can be used to make predictions of the colors that would result when different colored lights are mixed.

   ***Color television** appears full color by carefully mixing these three (RGB) colored lights.

b. Color subtraction and provide an example of its application

   Answer: **Color subtraction principles** selectively removes some parts of the visible spectrum

   * For example, the yellow filter removes the blue color, transmitting the green and red colors.

Question. Explain the concept of dithering ?

Answer: **Dithering** is the process by which we create illusions of the color that are not present actually

Question. What is the concept of pixel depth?

Answer: Pixel depth is the number of values that a pixel can take (1 bit (Black and White, 8bit (Grayscale), 24bits (Red 8,Green 8, Blue 8)))

Question. How is the original resolution of an image improved by resampling process in photoshop?

Answer: **Resampling** is the process of altering(changing) an images resolution by either adding or removing extra pixels.

* the original resolution of an image improved by resampling process in photoshop cause it will increase the pixels or decrease the extra pixels

Question. Explain how the RLE (Run Length Encoding) compression technique works. Why is it called lossless compression?

Answer: RLE It replaces sequences of the same data values within a file by a count number and a single value.

*The reason why it's called LossLess compression is because it doesn't loose any data

Question. JPEG (Joint Photographic Expert Groups) is considered as a lossy compression a technique because

Answer: Original pixel is lost after conversion to JPEG

Question. How do LCD (Liquid Crystal Display) screens works?

Answer: **LCD** displays work by using individual pixels to display visuals, moving or stationary.

Question. How do digital cameras works?

Answer: **Digital cameras** is an image sensor, which converts light information transmitted via a lens into an electrical signal that can then be stored and called up later by a computer, which reveals it as a photograph

*Digital Cameras's elements (LCD screen, Lens, Memory card slot, etc….)

Question. During the process of image dithering a pure black and white printer is able to print a gray scale image by:

Answer: Approximating the pixels values to either 0 or 255 and remembering the error and Mixing black dots and white dots

Question.The role of DCT (Discrete Cosine Transform) in JPEG compression is:

Answer: Change the original pixels values that are easy to store