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What is colour harmony?Discuss why colour harmony is important in HCI. (b)Explain the following using examples: (I) Components of Colours (II) Primary Colours (III) Secondary Colours (IV) Tertiary Colours

1a. colour harmony refers to the property that certain aesthetically pleasing color combinations have. These combinations create pleasing contrasts and consonances that are said to be harmonious. These combinations can be of complementary Colours , split-complementary Colours , colour triads, or analogous Colours . Colour harmony has been a topic of extensive study throughout history, but only since the Renaissance and the Scientific Revolution has it seen extensive codification. Artists and designers make use of these harmonies in order to achieve certain moods or aesthetics.

1b. Colour and accessibility are indelibly linked to one another, bad colour combinations create bad user environments. The right colour can show users that they are doing the right thing or the wrong thing. Colour can be used as a grouping method or to draw attention to certain aspects of the system. There are several traditional colour schemes known to enhance usability including but not limited to: monochromatic, analogous, complementary, triad and split complementary. Some common issues with color use are: too many colors, complementary Colours placed too close together, excessive saturation, inadequate contrast and inadequate attention to colour impairment. Colour can be used to create images that appear 3-D and is one of the most effective tools a developer has in their arsenal.

Colour schemes have a large impact on human-computer interaction, colour can greatly improve user interfaces if used correctly, but can also reduce the functionality of the interface if used inappropriately. Important factors of designing color interfaces include simplicity, consistency, and clarity. Firstly, you want to keep the colour scheme fairly simple. Simplicity can be achieved by using the four primary colours, which are red, green, yellow, and blue.

Consistency is also another important factor when designing an interface. Colours should be assigned to a particular type of concept or to help classify information. This technique helps users to retain more information in their short term memory. Clarity and the concise use of color aids in helping users identify items more efficiently.

2a. All perceived Colours can be represented by three independent variables, either the LMS responses, or the

tristimulus values under the primaries of a given colour system, such as RGB or XYZ. In many situations (e.g., computer image processing), it is more convenient to represent a colour by a different set of three independent variables HSL (or HSI, HSV). These are defined as components of colour.

Hue: is what most people think of when using the term ‘colour..’ It corresponds to its position in the spectrum. Examples of hues are: red, orange, yellow, green, blue, violet.it is also the dominant wavelength, the redness of red, greenness of green, etc.

Saturation: the purity of the colour, or how much white is contained in the colour. For example, red and royal blue are more saturated than pink and sky blue, respectively.

Luminance (intensity, value): the intensity of the light.

Brightness: for measuring self-luminous objects that emits light (CRT, etc.)

Lightness: for measuring reflected light.

The hue, saturation and luminance can be obtained given the tristimulus values of a colour under any

 Colour system.

2b. A set of primary Colours is a set of colorants or colored lights that can be combined in varying amounts to produce a gamut of Colours . This is the essential method used in applications that are intended to elicit the perception of diverse sets of Colours , e.g. electronic displays, colour printing, and paintings. Eg red, blue green etc.

2c. Secondary Colours ; Next come the three Secondary Colours ,.orange,purple and green .A colour resulting from the mixing of two primary colours. These are examples of secondary Colours :

 Yellow + Red = ORANGE

 Red + Blue = PURPLE

 Blue + Yellow = GREEN

2d. Tertiary Colours are the resulting colour formed when an equal amount of a primary and a secondary colour are mixed. The primary and secondary colour must be beside each other on the colour wheel. For example, a mixture of 50-percent red and 50-percent magenta would result in the tertiary colour of orange. Therefore we end up with a new colour somewhere in between.

 Yellow + Orange = YELLOW/ORANGE

 Red + Orange = RED/ORANGE

 Red + Purple = RED/PURPLE

 Blue + Purple = BLUE/PURPLE

 Blue + Green = BLUE/GREEN

 Yellow + Green = YELLOW/GREEN