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Subject: Computer Graphic

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Submitted to:

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QNO1

True color is an RGB color model standard that specifies 256 shades for red, green, and blue spaces, and HD color system offers better brightness and color capabilities compared to traditional content sometime called standard dynamic range. True color also refers to display or screens that use the RGB display mode and don't need a color look up table. Each sub pixel of red, green, and

blue contain 8 bit of information and if fourth bit present it is used for alpha channel information or simply ignored.

if a system has fourth byte for the alpha channel, this is then referred to 32 bit true color display, which is uses the RGBA color display.

Limitation:

The limitation of the RGB color system that it does not well work in print, which uses the CMYK system.

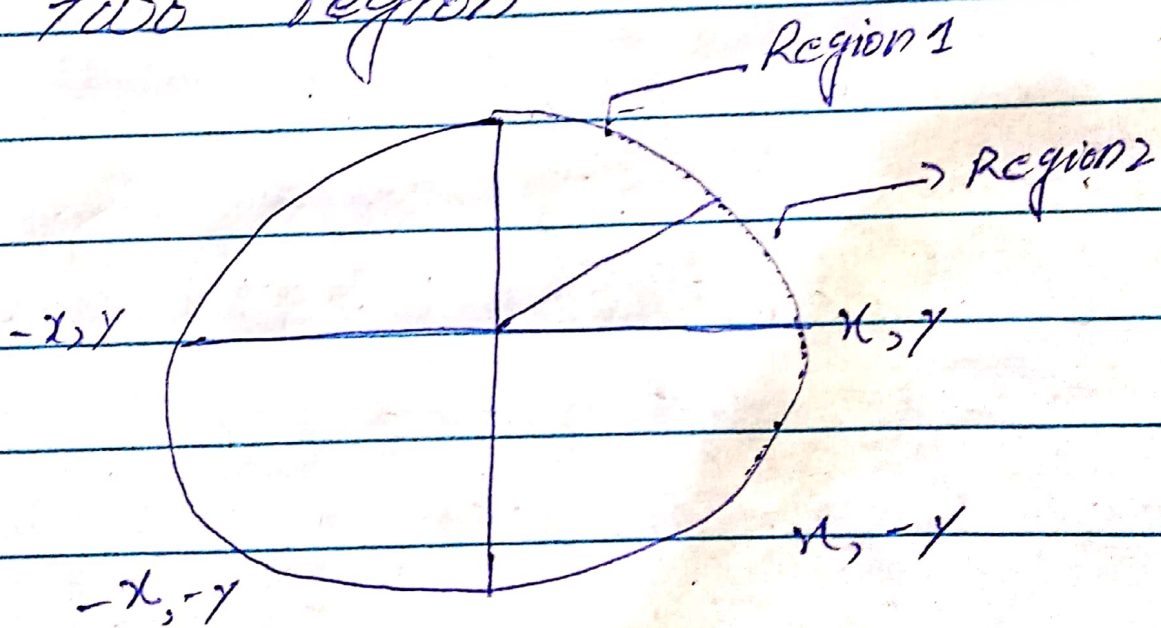
This has led to a great ideal of frustration when people print out document from Microsoft Office only to have them turn out to be wrong color. In addition different devices often use different types of LEDs. This means that the same color coordinates do not display consistently across smartphones, TV screen or even monitors. This can present unique problem for professional who

Work with precise
digital color, from
special effect to
graph or print
design.

Question NO 2

(d)

The reason behind the possible manipulating of the calculated value of just one octant is that by dividing the quadrant into two regions



Each point (x, y) is then projected into other three quadrants $(-x, y)$, $(x, -y)$, $(-x, -y)$ if uses 4-way symmetry.

for ellipse $(x, y) = xy^2 + yx^2 - x^2y$

if ellipse $(x, y) < 0$ then x, y is inside the ellipse

$(x, y) > 0$ then outside ellipse.

$(x, y) = 0$ is on the ellipse.

initially two decision

parameter p_{10} in region 1 and p_{20} in region 2.

These parameter are defined as p_{10} in region 1 is given

$$p_{10} = xy^2 + \frac{1}{4}yx^2 - x^2y$$

initially ellipse is centered at origin and first points

$$(x, y_0) = (0, xy)$$

obtain the initial decision parameter.

For every x_k position in region 1.

if $P_k > 0$ next point

$$(x_{k+1}, y_k)$$

else the next point is:

$$x_{k+1}, y_{k-1}$$

At each y_k in region 2

starting at $k=0$ perform

The following task:

$P_k > 0$ then next (x_k, y_{k-1})

else

$$(x_{k+1}, y_{k-1})$$

Obtain the symmetric

point in the three quadrant
and plots the coordinates
value

$$x = x + x_c, \quad y = y + y_c$$

Then we repeat these

steps for the region

P until we find

the value for

remaining region.

QNO2)

(b)

The mid point circle algorithm is used to determine the pixel need for rasterizing a circle while drawing a circle on a pixel screen. In this technique we determine the midpoint between the next 2 possible consecutive pixel and then checks whether the midpoint is inside or outside the circle. A circle is highly symmetrical and can be divided into 8 octets.

The next point is a choice between (x_{k+1}, y_k) and (x_{k+1}, y_{k-1})

We would like to choose the point nearest to actual circle.

Then input radius r and center (x, y) Then

$$(x_0, y_0) = 0, r$$

if $P_k < 0$ Then next point along the circle centered $(0, 0)$ is (x_{k+1}, y_k) and

$$P_{k+1} = P_k + 2x_{k+1} + 1$$

if $P_k > 0$ Then next point along circle is (x_{k+1}, y_{k-1})

$$P_{k+1} = P_k + 2x_{k+1} - 2y_{k+1}$$

Where $2x_{k+1} = 2x_k + 2$ and
 $2y_{k+1} = 2y_k - 2$.

Move (x, y) according to

$$x = x + x_c, \quad y = y + y_c$$

Repeat 3 to 5 until
 $x \geq y$

Drawbacks:

- This works but
- is inefficient.
- * multiplications & square root.
- * Large gaps in the circle for value of x close to s .

QNO3

colour models, colour spaces, or colour order system are method of organizing the set of possible human colour perception in a systematic way.

colour model can be divided into two main categories.

- * perceptually-based color model.
- * Display based color model.

④ perceptually based model include two sets of HSB or HLS model. The HSB

abbreviation means
(Hue, saturation and
brightness) The HLS
means hue, Lightness
and saturation.

They are organized in a
way similar to how
humans perceive color in
every day experience.

Hue is the name of
the color e.g orange or
green. Saturation is the
relative purity of the
colour on a scale from
grey to its most vibrant
tone.

Brightness or lightness refer
to the amount of light
energy used to create
colour.

In computer, drawing or painting application used RGB and HSL tools in the form of percentage

to Device dependent model.

The device dependent model are display based model. It include the RGB model which denotes the use of red, green and blue color.

These are used to create million of color on a computer monitor or a television screen by combining different value of red, green and blue.

RGB is an example

of device dependent color model!

In computer, the appearance of color depends upon the setting of the display device. Each device ~~whether~~ whether monitor television screen emits a slightly different shade and intensity of red, green and blue light. In the RGB system each color is measured by a number of ~~r~~ ranging from 0 to 255 for a total of 256 and 0 is a valid number. The RGB is not good result in printing process.

The next model is The cyan magent and yellow colour. This model is subtractive color model that complement the RGB additive model.

CMY model is used in printing. possible to separate color easily but problem of reproduction pure black color.

it needs black to be used exclusively. Therefore, black must be added to the separations, resulting in the CMYK color model, where K refers to black.