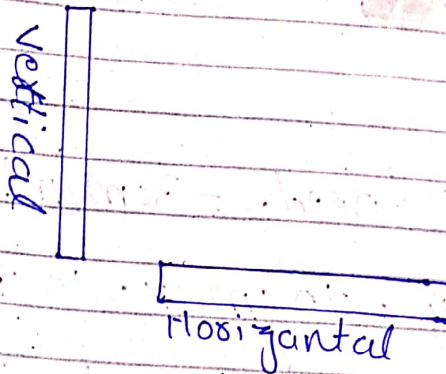


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Question No 1

Ans:- On a black or white display, if the shape of the line is rectangular according to the width of the line, then the line can be drawn as follows:



The vertical line will be the thinnest possible line as compared to horizontal line. As the vertical line travels on y-axis of its width is 'n' where horizontal line travel on x-axis of its height is '3n' which is more.

than width.

"Question No 3"

"Part No a" :-

Ans: if we consider only the display (ignoring shaded or lines) than vectors display will be faster than Raster display because vectors display draw lines directly no need of predefined grid or buffers while raster display image using predefined grid of pixel and the images is stored in a frame buffer.

(Scan 60 time per second).

CRT Scanning Speed. = 3cm/milli second

Size of display = 10cm x 10cm

outline of square = 6cm (each side)

Approximate display time = ?

~~S~~ Solution:-

As square has 4 sides

and 1 side is 6cm

⇒ So, 4 sides = 24 cm (total)

As, 3cm scanning take / millisecond

$$\text{total scanning} = \frac{24\text{cm}}{3\text{cm}} = 8 \text{ time}$$

⇒ Here therefore, total 8 scanning will be occur and display time will be :-

$$= 8 \times 10^{-3}$$

$$= 0.008 \text{ seconds}$$

or Total Display time = 8 milli second

Part No "B" :-

Raster display would be better for filled square shape because :-

Reason :-

- i) Advance vector system can provide a limited amount of shading.

ii) Its difficult to use vector display for realistic (shaded) images.

iii) Irregular beam motion is slower than steady beam motion of raster display.

iv) Refresh vector display are limited in how many lines or how much text can be shown without refresh flicker.

However raster display is cheap

and point entire screen on each scan (use for area filling).

Question No "2" :-

Part No 1 :-

In direct colour system :-

RGB $\Rightarrow R = 8 \text{ bits}$, $G = 8 \text{ bits}$

$B = 8 \text{ bits}$.

$\Rightarrow N = 8$

$2^N = 2^{24} = 16,777,216 \text{ colour}$.

also memory frames.

⇒ In direct colour system :-

$$R, G, B \Rightarrow R = 5 \text{ bits}, G = 6 \text{ bits}$$

$$B = 5 \text{ bits.}$$

$$N_r = 5, N_g = 6, N_b = 5$$

⇒ $2^N = 2^{n16} = 65,536$ colours
Preference.

Reason No 1 :-

More colours than discernable by human eye.

Reason No 2 :-

More colours require more memory frames.
that why we prefer direct colour over true colour in common use.

Part No "b" :-

Given :-

⇒ No of bits used for Red colour
= $N_r = 4$ bits.

\Rightarrow No. of bits used for Green colour = $N_g = 5$ bits.

\Rightarrow No. of bits used for blue colour = $N_B = ?$

we have to find blue colour bits = ?

while total colours = 8192

$$\Rightarrow 2^{(N_R + N_G + N_B)} = 8192$$

$$\Rightarrow 2^{(4 + 5 + N_B)} = 8192 \rightarrow \textcircled{1}$$

$$\text{As } 2^{13} = 8192 \rightarrow \textcircled{ii}$$

Compare the power of 2 of eq (1) and eq (2)

$$\Rightarrow 4 + 5 + N_B = 13$$

$$\Rightarrow N_B = 13 - 4 - 5$$

$$\Rightarrow N_B = 4 \text{ bits}$$

So the no. of bits for blue colour is 4 bits.

