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Sub: Computer Graphics

ASSIGNMENT-I

Q.1. Explain 3D graphics and packages.

→ In 3D graphics, three co-ordinates - x, y and z are used. 3D graphics are images that looks closer to reality. As 3D entities, they can be rotated and viewed from all angles as well as be scaled longer or smaller. They also allow lighting to be applied automatically in the rendering stage

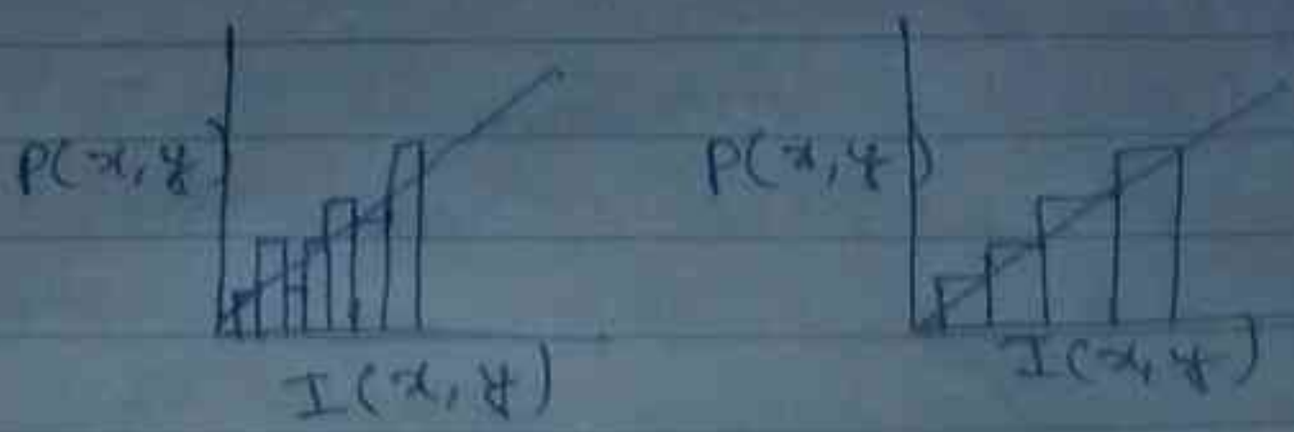
3D s/w packages →

1. 3D Studio Max
2. Maya
3. Blender
4. Solidworks
5. Rhino 3D
6. ZBrush

Q.2. Explain Dithering techniques.

→ It is the process by which we create illusions of the color that are not present actually. The different dithering techniques are :-

(i) Random dithor → In random dithor, errors appear as a noise.



P(x, y) = floor(I(x, y) + noise(x, y) + 0.5)

(ii) Ordered dithor → In ordered dithor, error occurs randomly in the form of pseudo.

(iii) Error diffusion dithor → Error occurs once in the neighbor pixel.

Q.3. What is Animation? Explain techniques, control and basic rules.

→ Animation is the art of creating moving images via the use of computers. It is created by means of 3D computer graphics, though 2D computer graphics are still widely used for low bandwidth and faster real-time rendering needs.

Techniques :-

2D
1. Hand written animation
2. Cut outs
3. Rotoscope
4. Flip book

3D
5. Stereoscopic 3D
6. CGI cut out
7. Motion capture
8. Morphing

Animation controls display ~~audio~~ AVI clips that do not contain audio. One common use for an animation control is to indicate system activity during a lengthy operation.

Basic rules :-

1. Squash and stretch
2. Anticipation
3. Staging
4. Arc
5. Secondary action

Q.4: Explain properties of light, chromaticity, RGB and YIQ color models.

→ Properties → Intensity, propagation direction, frequency and

wavelength spectrum, polarization.

Chromaticity → It defines quality of a color regardless of its luminance. It consists of 2 independent parameters ① hue, and ② colourfulness

RGB → It is an additive color model in which red, green and blue light are added together in various ways to produce a broad array of colors.

YIQ → It is a rotation of RGB colour space such that the Y axis contains the luminance information, allowing backwards compatibility with black-and-white colour TV's, which display only the axis of the colour space.