

NAME

M. NAEEM

ID#

14146

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Q1:

Q1: (a) Ans: The gray level slicing is equivalent to band pass filtering. It manipulates groups of intensity levels in an image and the range will be specific by deminishing the rest or by leaving them alone. Examples of gray level slicing is it used in CT scan, Medical images Satellite images

Q1: (b)

Ans: Yes it is possible to get more details in the Negative of a picture because if we see the Negative of a picture the details are more visible. And in the Negative the light area will be appear more dark and the dark area will be more light and other points will also be more clear and clean.

⇒ The given image shows us the clear example of the negative space composition. The photograph is very empty - even minimalist, only two parts of the image attract significant attention at all: the dragonfly and the plant. Everything else in the image is Negative Space. Fading into the background.

3.1) A Dragonfly and the Sky



NAME. M. N/AEEM.

ID# 14146.

(2)

Q2:

Ans: The N-LAHE stand for the contrast limited Adaptive Histogram Equalization is the method of combination of the Normalization, the Histogram Equalization is the most important parts of any image processing. This techniques can be used on a whole image or just on a part of image. Histogram Equalization can be used to improve the visual appearance of an image so the Histogram Equalization procedure is used in below images

NAME

M. NAEEM.

ID#

14196.

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Q3:

Ans: Euclidean Distance: D_e :

$$P(x, y) = (6, 1)$$

$$Q(s, t) = (3, 7)$$

$$\begin{aligned} \Rightarrow D_e(P, Q) &= \sqrt{(x-s)^2 + (y-t)^2} \\ &= \sqrt{(6-3)^2 + (1-7)^2} \\ &= \sqrt{(3)^2 + (6)^2} \\ &= \sqrt{45} = \boxed{6.7} \end{aligned}$$

\Rightarrow Chessboard Distance: D_8 :

$$\begin{aligned} &\max(|x-s|, |y-t|) \\ &= \max(|6-3|, |1-7|) = \max[3, 6] \\ &= \max(6) = \boxed{6} \end{aligned}$$

\Rightarrow City Block Distance: D_4 :

$$\begin{aligned} D_4(P, Q) &= |x-s| + |y-t| \\ &= |6-3| + |1-7| \\ &= 3 + 6 \end{aligned}$$

$$\boxed{9}$$

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14146

(4)

Q4:

(a) \rightarrow

Ans: A Histogram is a Graphical Representation of the tonal Distribution in an Image. The tonal value is the light or dark of a color independent of its Chromaticity (i.e. Hue and Chroma).

The Histogram basically plots the Number of pixels for each tonal value. Most of the data points of a very dark image of Histogram will be the left side and center of the Graph.

(b) \rightarrow

Ans: 1) Pic A matches with Hgm 2. Pic A: Hgm 2.

2) Pic B matches with Hgm 4. Pic B: Hgm 4.

3) Pic C matches with Hgm 3. Pic C: Hgm 3.

4) Pic D matches with Hgm 1. Pic D: Hgm 1.