Digital Image Processing

CS - 06

**Midterm Assignment**

**Question #1 (12 Marks):**

1. What will be the size of a colored picture having resolution 1600 x 1200 and color depth of 8 bits?
2. If the same image is converted to Grey Scale image, what will be the size if we keep the same color depth?
3. True color system has 24-bit color depth. Why is it not a good idea to increase color depth beyond that?

**Question #2 (12 Marks):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **98** | **95** | **93** | **84** | **83** |
| **93** | **P** | **86** | **81** | **79** |
| **89** | **88** | **84** | **80** | **Q** |
| **81** | **78** | **77** | **7** | **69** |
| **79** | **76** | **73** | **68** | **64** |

When removing noise from images, the pixel values that are distorted are fixed by replacing them with values calculated using the surrounding pixels. In the given pixel grid, the pixel ‘P’ and ‘Q’ are such distorted pixels.

1. Find value of P, where P = Average of N8P.
2. Find value of Q, where Q = Average of N8Q.
3. Do you think that after the insertion of calculated values, the pixel grid is in its original form? Explain your answer.

**Question #3 (6 Marks):**

Consider the spatial resolutions given in Lecture 5 – Spatial Resolution and Image Representation. State which resolution can work best for:

1. QR Code
2. Finding the dominant color of an image
3. Finding number of faces in a picture

**Instructions for Assignment Submission**

1. Write your names and Ids at the top of each paper of answer sheet.
2. Scan / Take Photo of each paper and save each photo with a number. E.g. photo of page 1 of answer sheet be saved with name 1.jpg , then 2.jpg and so on.
3. Put all answer photos in a folder, name the folder with subject name.
4. Zip the folder and upload.