**ASSIGNMENT**

**NAME:**

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**DATE:**

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**SUBJECT:**

**Digital Image Processing**

**QUESTION** **# 1**

**Explain the term Filtering in Digital Image Processing. State some of its types and state what do they do or why are they used.**

**ANSWER**

**FILTERING:**

It is a technique which is used to modify and enhance the image.

**e.g.,**

We can filter an image to change features like smoothing, sharpening, edge enhancement, etc.

**TYPES:**

There are four types of **Filtering**;

1. **Low Pass Filter:**

It is the most basic type of filtering which is used for smoothing or blurring the image. It calculates the average of a pixel and all its eight neighbors.

1. **High Pass Filter:**

A large variety of image processing when a high frequency pass low frequency where filter does not affect high frequency is called high pass filter, which is used for sharpening the image.

1. **Band Pass Filter:**

A band pass alternates very low and very high frequency but retains a middle range band of frequency. It is used for edge enhancement.

1. **Notch Filter:**

It is used to remove the repetitive spectral noise from an image.

**QUESTION # 2**

**What is Masking? Explain and provide an example of its working.**

**ANSWER**

**MASKING:**

In Digital Image Processing, masking is the act of changing the colors of certain areas of a picture or transferring these areas onto another background. On an independent layer, the color of this scoop can then be edited. The filters used for this method allows for the details of the picture to be maintained.

**TYPES:**

1. Layer Masking.
2. Clipping Masking.
3. Alpha Channel Masking.

**WORKING:**

Masking is used to create different color variants of a specific product. So, instead of being busy with taking countless picture of different colors the photographer can take a single picture of item that can be used for all colors. It reduces the overall efforts depending on all number of color sampling.

**e.g.,**

The face of a model in not exact in one picture where the piece of clothing is, two pictures can be easily combined to create final image.