1. What is Image Enhancement?
   Image enhancement is to process an image so that the output is more suitable for specific application.

2. Name the categories of Image Enhancement and explain?
   The categories of Image Enhancement are,
   Spatial domain
   Frequency domain
 Spatial domain: It refers to the image plane and it is based on direct manipulation of pixels of an image.

 Frequency domain techniques are based on modifying the Fourier transform of an image.

3. What do you mean by Point processing?
   Image enhancement at any Point in an image depends only on the gray level at that point is often referred to as Point processing.

4. What is gray level slicing?
   Highlighting a specific range of gray levels in an image is referred to as gray level slicing. It is used in satellite imagery and x-ray images

5. What do you mean by Mask or Kernels.
   A Mask is a small two-dimensional array, in which the value of the mask coefficient determines the nature of the process, such as image sharpening.

6. What is Image Negative?
   The negative of an image with gray levels in the range [0, L-1] is obtained by using the negative transformation, which is given by the expression.
   s = L-1- r , where s is output pixel, r is input pixel.

7. What is contrast stretching?
   Contrast stretching reduces an image of higher contrast than the original, by darkening the levels below m and brightening the levels above m in the image.

8. Define Histogram.
   The histogram of a digital image with gray levels in the range [0, L-1] is a discrete function h (r_k) = nk, where r_k is the k_{th} gray level and n_k is the number of pixels in the image having gray level r_k.

9. What is histogram equalization
   It is a technique used to obtain linear histogram. It is also known as histogram linearization. Condition for uniform histogram is $P_s(s) = 1$.

10. What is spatial filtering?
   Spatial filtering is the process of moving the filter mask from point to point in an image. For linear spatial filter, the response is given by a sum of products of the filter coefficients, and the corresponding image pixels in the area spanned by the filter mask.

11. Define averaging filters.

        The output of a smoothing, linear spatial filter is the average of the pixels contained in the neighborhood of the filter mask. These filters are called averaging filters.

12. What is a Median filter?

        The median filter replaces the value of a pixel by the median of the gray levels in the neighborhood of that pixel.

13. What is maximum filter and minimum filter?

        The 100_{th} percentile is maximum filter is used in finding brightest points in an image. The 0_{th} percentile filter is minimum filter used for finding darkest points in an image.

14. Define high boost filter.

        High boost filtered image is defined as

HBF = A (original image) – LPF

     = (A-1) original image + original image – LPF

HBF = (A-1) original image + HPF

15. Write the application of sharpening filters.

   The applications of sharpening filters are as follows,

        Electronic printing and medical imaging to industrial application

        Autonomous target detection in smart weapons.

16. Name the different types of derivative filters.

   The different types of derivative filters are

        Perwitt operators

        Roberts cross gradient operators

        Sobel operators.

Reference:

1. **https://www.scribd.com/doc/45572795/Digital-Image-Processing-Question-Answer-Bank**
2. **Digital Image Processing 3rd ed. - R. Gonzalez, R. Woods**