Long Questions

1.How does a digital camera capture images?
2.What is the process of digitizing a physical image using a scanner?
3.What is the concept of gray levels in digital images?
4.How is gray level to binary image conversion achieved?
5.What is sampling, and how does it relate to digital image processing?
6.What is quantization, and how is it used in digital image processing?
7.Discuss the relationship between pixels in a digital image.
8.Explain the concept of imaging geometry and its significance in digital image processing.
9.What are 2D transformations, and how do they impact digital image processing?
10.What is the Discrete Fourier Transform (DFT), and how is it used in digital image processing?
11. What is the role of the Discrete Cosine Transform (DCT) in digital image processing?
12.What is the Karhunen-Loève Transform (KLT), and how is it used in digital image processing?
13.What is the Singular Value Decomposition (SVD), and how is it used in digital image processing?
14.How does the number of gray levels affect image quality and information content?
15.How does pixel interpolation impact image resizing and scaling?
16.What is the impact of image transformations on geometric properties such as size, shape, and orientation?
17. How does the choice of transform affect image compression efficiency and quality?
18.What is the significance of the concept of dynamic range in digital images?
19.How does error-free compression impact image quality and fidelity?
20.What are some challenges associated with lossy compression techniques?
21.What are the key components and working principles of a digital camera?
22.How does the digitization process occur when scanning a physical image?
23.Explain the concept and significance of gray levels in digital images.
24.Describe the process and significance of converting gray levels to a binary image.
25.What is pixel interpolation, and how does it impact image resizing?
26.Discuss the significance of imaging geometry in digital image processing.
27.What are some common 2D transformations used in digital image processing?
28.How do the Discrete Fourier Transform (DFT) and Discrete Cosine Transform (DCT) differ in digital image processing?

29.What is the Karhunen-Loève Transform (KLT), and how is it used in digital image processing?
30.How does Singular Value Decomposition (SVD) contribute to digital image processing?
31.What are the fundamentals of image enhancement in spatial domain point processing?
32.How does histogram processing contribute to image enhancement?
33.What are the principles behind spatial filtering for image enhancement?
34.How does enhancement in the frequency domain differ from spatial domain techniques?
35.What are the goals and methods of image smoothing?
36.How does image sharpening enhance image details?
37.What are the key principles of image enhancement in spatial domain point processing?
38.How does histogram processing contribute to image enhancement?
39.What are the principles behind spatial filtering for image enhancement?
40.How does enhancement in the frequency domain differ from spatial domain techniques?
41.What are the goals and methods of image smoothing?
42.How does image sharpening enhance image details?
43.What are the key principles of image enhancement in spatial domain point processing?
44.How does histogram processing contribute to image enhancement?
45.What are the principles behind spatial filtering for image enhancement?
46.How does enhancement in the frequency domain differ from spatial domain techniques?
47.What are the goals and methods of image smoothing?
48.How does image sharpening enhance image details?
49.What are the key principles of image enhancement in spatial domain point processing?
50.How does histogram processing contribute to image enhancement?
51.What are the principles behind spatial filtering for image enhancement?
52.How does enhancement in the frequency domain differ from spatial domain techniques?
53.What are the goals and methods of image smoothing?
54.How does image sharpening enhance image details?
55.What are the key principles of image enhancement in spatial domain point processing?
56.How does histogram processing contribute to image enhancement?
57.What are the principles behind spatial filtering for image enhancement?
58.How does enhancement in the frequency domain differ from spatial domain techniques?
59.What are the goals and methods of image smoothing?

60.How does image sharpening enhance image details?
61.What is the Image Restoration Degradation Model?
62.Explain the Algebraic Approach to Image Restoration.
63.What is Inverse Filtering in Image Restoration?
64.How does the Image Restoration Degradation Model account for blur?
65.Discuss the application of Algebraic Approach in real-world image restoration.
66.What are the limitations of Inverse Filtering in image restoration?
67.How does the Image Restoration Degradation Model handle noise?
68.Describe the iterative nature of Algebraic Approach in image restoration.
69.How do Inverse Filters handle variations in the Point Spread Function (PSF)?
70.What are the practical considerations for selecting between Algebraic and Inverse Filtering methods?
71.What role does regularization play in the Algebraic Approach to Restoration?
72.Discuss the limitations of Algebraic Approach in handling complex degradation models.
73.How does the concept of Wiener Filtering improve upon simple Inverse Filtering?
74.Describe the challenges associated with Inverse Filtering in the presence of noise.
75.How does the choice of regularization parameter impact the performance of Algebraic Restoration?