

BE Semester-VII (IT) Question Bank

Image Processing

All questions carry equal marks (10 marks)

1.	Write a note on: Unsharp masking and High boost filtering
2.	Write note on Image pyramid
3.	Discuss the applications of various components of EM Spectrum
4.	Explain properties of 2D FFT
5.	Write a short note on: Walsh Transform
6.	Explain the working of adaptive median filter
7.	Write a short note on: Discrete Cosine Transform
8.	Explain: <ul style="list-style-type: none">• Min Filter• Max Filter• Midpoint Filter• Alpha trimmed mean filter
9.	Explain: Smoothing filters in spatial domain
10.	Write a short note on various types of noise
11.	Write a note on: Histogram equalization
12.	Write a note on: Histogram stretching
13.	Discuss in detail: <ul style="list-style-type: none">• Power law transformation• Contrast stretching
14.	Explain: Smoothing filters in frequency domain
15.	Explain: Sharpening filters in frequency domain
16.	Write a note on: Homomorphic filtering
17.	Explain: Subband coding
18.	Write a short note on: Haar transformation
19.	Explain in detail: harmonic and contra harmonic filters
20.	Write a note on Continuous tone still image compression standards

21.	<p>Explain following terms with example:</p> <ul style="list-style-type: none"> • Dilation • Erosion 																											
22.	<p>Explain following terms with example:</p> <ul style="list-style-type: none"> • Opening • Closing 																											
23.	Write a note on: Hit or miss transformation																											
24.	Explain the morphological operation to extract the boundary of object for binary image																											
25.	Discuss in detail: Region based segmentation																											
26.	Explain the elements of digital image processing system with proper diagram																											
27.	Explain image compression model in detail with diagram.																											
28.	Discuss and Differentiate lossy and loss less image compression methods																											
29.	What is thresholding? Explain its merits and limitations in segmentation																											
30.	Explain boundary descriptors.																											
31.	<p>Explain following terms:</p> <ul style="list-style-type: none"> • Pixel neighborhood • Paths • Connected component • Object connectivity 																											
32.	Explain Bit plane slicing for gray level image																											
33.	Explain the working of median filter with suitable example																											
34.	<ul style="list-style-type: none"> • Define global thresholding. Write algorithm to calculate global threshold. • Discuss in detail with proper diagram: Homomorphic filter 																											
35.	<p>Differentiate:</p> <ul style="list-style-type: none"> • Image restoration and Image Enhancement • Periodic noise and impulse noise 																											
36.	Discuss Adaptive, local noise reduction filter																											
37.	<p>1. Perform the Histogram Stretching on below image with 8 intensity levels.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Grey Level</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>No. of Pixels</td> <td>0</td> <td>0</td> <td>50</td> <td>60</td> <td>50</td> <td>20</td> <td>10</td> <td>0</td> </tr> </table> <p>2. Given a 3 X 3 image, plot its bit planes</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td> <td>2</td> <td>0</td> </tr> <tr> <td>4</td> <td>3</td> <td>2</td> </tr> <tr> <td>7</td> <td>5</td> <td>2</td> </tr> </table>	Grey Level	0	1	2	3	4	5	6	7	No. of Pixels	0	0	50	60	50	20	10	0	1	2	0	4	3	2	7	5	2
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7	5	2																										

38.	<ol style="list-style-type: none"> 1. Discuss gradient operator with its application. What is the problem with Roberts cross gradient operator? 2. An aerial view of Ahmadabad – Baroda express way has been taken. There is an application to measure length of the way through image processing. Explain required methods and steps to do the same. 																									
39.	<p>Explain first order and second order derivative for following data. Discuss property and applications of both</p> <table border="1" data-bbox="293 479 1241 517"> <tr> <td>5</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>3</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>7</td><td>7</td><td>7</td><td>7</td> </tr> </table>	5	5	4	3	2	1	0	0	0	6	0	0	0	0	1	3	1	0	0	0	0	7	7	7	7
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40.	Explain: Sharpening filters in spatial domain																									