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B.E. (Computer Science & Engineering) Eighth Semester (C.B.S.)

Elective - IV: Digital Image Processing

NJR/KS/18/4753 P. Pages: 2 Time: Three Hours Max. Marks: 80 Notes: 1. All questions carry marks as indicated. Solve Question 1 OR Questions No. 2. 2. Solve Question 3 OR Questions No. 4. 3. 4. Solve Question 5 OR Questions No. 6. 5. Solve Question 7 OR Questions No. 8. 6. Solve Question 9 OR Questions No. 10. Solve Question 11 OR Questions No. 12. 7. Due credit will be given to neatness and adequate dimensions. 8. Assume suitable data whenever necessary. 9. Illustrate your answers whenever necessary with the help of neat sketches. 10. 11. Use of non programmable calculator is permitted. Explain image sampling & quantization with suitable example. 7 Explain basic relationship between pixels. b) OR Explain the piecewise-Linear transformation function. Explain each in brief. 2. a) Define digital image processing and give the application of digital image processing. b) 3. Explain the following terms. a) Histogram processing. a) Histogram equalization b) Histogram specification c) Explain smoothing & Sharpening of spatial filter. b) OR Image is given of 64x64 pixel with gray level. Equalize histogram of it. 4. a) Explain different color model with suitable diagram. b) 5. a) Explain properties of 2D-DFT. Explain image smoothing using frequency domain. OR

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6.	a)	Explain homomorphic filtering in frequency domain.	7
2	b)	Explain term image transformation.	6
7.	a)	What do you mean by degradation? Give degradation process model for a continuous function giving relevant mathematical support.	7
	b)	Write short note on Image Restoration and Image Reconstruction.	7
		OR	
8.	a)	Write short note on constrained least square filtering.	7
	b)	Explain periodic Noise reduction technique by frequency domain filtering.	7
9.	a)	Explain briefly about how different transforms are selected in image compression. Explain with example.	8
2	b)	Explain Digital Image watermarking.	5
3	7	OR	
10.	a)	What do you mean by Huffman coding. How average length will be calculated for the following string. "Clean Nagpur Green Nagpur".	7
	b)	Explain LZW coding with example.	6
11.	a)	Explain region growing, splitting? Merging.	7
	b)	Explain chain codes with suitable example.	6
		OR	
12.	a)	Explain skeleton & shape numbers in detail.	7
	b)	Explain carry Edge detector.	6





The secret of getting ahead is getting started. ~ Mark Twain

