POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2017
Programme: BE | Full Marks: 100
Course: Image Processing and Pattern Recognition | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1.	a)	What are the components of Digital Image Processing? Explain the application of it in the field of medical science.	8
	b)	What is the basic of spatial filtering? Compare Mean Filter with Median Filter along with suitable example.	7
2.	a)	What is Frequency Domain? Explain the equations of 2D-DFT along with their properties.	7
	b)	Compare point operation with neighborhood operation in image processing. Explain the process of digital negative.	8
3.	a)	What is sharpening in frequency domain? Compare Butterworth high pass filter with Gaussian high pass filter with equations.	7
	b)	What is Periodic Noise? Explain any two Band Reject Filters to remove periodic noise in frequency domain.	8
4.	a)	What is the purpose of compression in image processing? Compare fixed length coding with variable length coding along with example.	8
	b)	What is Psychovisual Redundancy? Explain lossy predictive coding with require equation and block diagram.	7
5.	a)	What is similarity based segmentation? Explain the process of image segmentation by region splitting and merging.	7
	b)	Compare and explain Dilation and Erosion in image processing with necessary equations and suitable figures.	8
6.	a)	What is the role of Gradient Operator? Compare and explain the Robert-cross operator, Prewitt operator and Sobel operator.	7
	b)	What can we Represent the Regions in Image? Compare and explain the process of 4-directional chain code with 8-directional chain code.	8
7.	Write short notes on: **(Any two)**		2×5
	a)	Matching by Correlation	
	b)	Pattern Recognition Vs Image Processing	
	c)	Basic Adaptive Thresholding	