USN | | | | | | 0 | 6 | 1 | | BAI515A

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Computer Vision

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

			M	L	C
		Module – 1			
Q.1	a.	With a neat diagram, explain the image sensing pipeline and its important effects.	10	L2	CO1
	b.	Explain in detail the Bidirectional Reflectance Distribution Function (BRDF).	10	L2	CO1
		OR			
Q.2	a.	Explain the linear filtering along with examples of linear filtering.	10	L2	CO1
	b.	Explain the following with respect to image processing: i) Pixel Transforms ii) Compositing and Matting.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain the concept of morphology in Image Processing.	10	L2	CO2
	b.	With a neat diagram explain the Fourier transforms in detail along with 2-D Fourier transforms.	10	L2	CO2
		OR			
Q.4	a.	Explain the wavelets of Image Processing. Describe the application of Laplacian Pyramid.	10	L2	CO2
	b.	Explain the following with geometric transformations: i) Forward warping algorithm ii) Inverse warp algorithm iii) MIP-mapping iv) Elliptical weighted average.	10	L2	CO2
		Module – 3			
Q.5	a.	Explain the Noise Probability density functions in detail.	10	L2	CO3
	b.	Explain the concept of band reject filters, bandpass filter and notch filters to reduce the noise by frequency domain filtering.	10	L2	CO3
		OR			
Q.6	a.	Explain how to detect the isolated points and line in image segmentation.	10	L2	CO3
	b.	Write the region-growing algorithm for 8-connectivity. Explain the concept of region splitting and merging.	10	L2	CO3

Module – 4

Q.7	a.	Explain different color models along with conversion technique of one model to another model and vice-versa.	10	L2	CO4
	b.	Write a short notes on: i) Color image smoothing ii) Color image sharpening iii) Noise in color image	10	L2	CO4

OR

Q.8	a.	Explain in detail image segmentation process based on color.	10	L2	CO4
	b.	Explain the concept of psedocolor image processing.	10	L2	CO4

Module – 5

Q.9	a.	With the help of a diagrams explain the concept of erosion, dilation, opening and closing used in morphological image processing.	10	L2	CO5
	b.	Explain any 5 basic morphological algorithms.	10	L2	CO5

OR

Q.10	a.	Explain the following with respect to feature extraction : i) Boundary (Border) following ii) Chain codes.	10	L2	CO5
	b.	Explain any two object recognition based on decision theoretic methods.	10	L2	CO5

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