GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code: 3171113   **Date:30-05-2024**

Subject Name: Practical aspects of Computer Vision

Time:02:30 PM TO 05:00 PM   **Total Marks:70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	(a)	Enlist fundamental steps involved in image processing with block diagram.	03
	(b)	Explain Human Visual system in detail with necessary sketch.	04
	(c)	Explain Histogram equalization with necessary equations.	07
Q.2	(a)	Explain Geotagged Images.	03
	(b)	Explain warping of images with python programming or pseudo code.	04
	(c)	Explain Scale Invariant Feature Transform.	07
		OR	
	(c)	Explain Homomorphic Filtering in brief.	07
Q.3	(a)	Write a note on Pinhole camera.	03
	(b)	Write down python code of plotting an image with a few points and a line.	04
	(c)	Write a short note on Epipolar geometry in detail.	07
		OR	
Q.3	(a)	Explain K – Means clustering in brief.	03
	(b)	Explain 3D reconstruction in brief.	04
	(c)	Write a short note on stereo images.	07
Q.4	(a)	Write a note on RANSAC.	03
	(b)	Explain below terms in the context of transformations in 2D. (i) Scaling (ii) Shearing	04
	(c)	Explain image registration process in detail.	07
		OR	
Q.4	(a)	Write a note on Optical Character Recognition(OCR).	03
	(b)	Explain K-nearest neighbor classifier.	04
	(c)	Discuss Content-based Image Retrieval.	07
Q.5	(a)	Explain Camera Calibration.	03
	(b)	Explain about Indexing images in brief.	04
	(c)	What is the significance of Principal Component Analysis (PCA)?explain in detail.	07
		OR	
Q.5	(a)	Discuss camera matrix.	03
	(b)	Discuss Graph Cut in the context of image segmentation.	04
	(c)	Write a note Support Vector Machine(SVM).	07

****