Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171113   **Date:06/06/2022**
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
Q1	**(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**
Q2	**(a)**	Differentiate between spatial domain and frequency domain operations	**03**
	(b)	Explain any two Image Transforms.	**04**
	(c)	Explain Harris Corner Detector algorithm.	**07**
		OR	
	(c)	Explain Scale Invariant Feature Transform.	**07**
Q3	**(a)**	Dissuss affine transformation.	**03**
	(b)	Write down python code of plotting an image with a few points and a line.	**04**
	(c)	Write a short note on homography & also explain direct linear Transformation algorithm.	**07**
		OR	
Q.3	**(a)**	State different limitations of a pinhole camera & how to overcome these Limitations?	**03**
	(b)	Explain 3D reconstruction in brief.	**04**
	(c)	Write a short note on stereo images.	**07**
Q.4	**(a)**	Write a note on Image Scaling.	**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)**	Discuss Content-based Image Retrieval.	**03**
	(b)	What do you mean by clustering? Also explain K-means clustering.	**04**
	(c)	Write a short note on epipolar geometry in detail.	**07**
Q.5	**(a)**	What do you mean by Image Mosaicing?	**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)**	Explain Camera Calibration.	**03**
	(b)	Discuss Graph Cut in the context of image segmentation.	**04**
	(c)	Write a note on Optical character recognition.	**07**

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