Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3171113 Date:07-01-2023

Subject Name:Practical aspects of Computer Vision

Time:10:30 AM TO 01:00 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)**	Explain basic component of Digital Image Processing.	**03**
	(b)	Describe human eye –brain system for computer vision.	**04**
	(c)	Explain below spatial domain operations on image. (i) Contrast Stretching (ii) Gray level slicing	**07**
Q.2	**(a)**	Discuss Affine Transformation.	**03**
	(b)	Write a note on Geotagged Images.	**04**
	(c)	Discuss basic steps of image filtering in frequency domain.	**07**
		OR	
	(c)	Discuss butterworth low pass filter with necessary equations.	**07**
Q.3	**(a)**	Write a python program of plotting an image.	**03**
	(b)	Explain K-nearest neighbor classifier.	**04**
	(c)	Explain Harris Corner Detector algorithm.	**07**
		OR	
Q.3	**(a)**	Write a short note on camera matrix.	**03**
	(b)	Discuss Image mosaicing.	
	(c)	Explain Scale Invariant Feature Transform.	**07**
Q.4	**(a)**	Write a note on Pin-hole camera.	**03**
	(b)	Explain camera calibration.	**04**
	(c)	Explain Augmented Reality in brief. Also discuss PyGame &PyOpenGL.	**07**
		OR	
Q.4	**(a)**	Write a python program for rotating an image by 45 degree.	**03**
	(b)	Write a note on Optical Character Recognition(OCR).	**04**
	(c)	Explain the significance of Principal Component Analysis (PCA) technique for dimensionality reduction of large Data set.	**07**
Q.5	**(a)**	Explain 3D reconstruction in brief.	**03**
	(b)	Explain Image Warping in brief.	**04**
	(c)	Write a short note on epipolar geometry in detail.	**07**
		OR	
Q.5	**(a)**	Explain Disparity Map.	**03**
	(b)	Discuss image segmentation using Clustering.	**04**
	(c)	Write a note on support vector machine algorithm.	**07**

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