Q. Code: 197400

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Sixth Semester

AD18604 – COMPUTER VISION AND APPLICATIONS

(Artificial Intelligence and Data Science)

(Regulation 2018)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Apply the image transformation and enhancement techniques.	**3**
CO 2	Use suitable feature extraction and segmentation techniques.	**3**
CO 3	Recognize the geometric relations.	**4**
CO 4	Select suitable optical flow for motion field and methods for 3D reconstruction.	**2**
CO 5	Create 3D objects.	**5**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Define image transform.	**1**	**1**
2.	Summarize convolution.	**1**	**2**
3.	How to detect Edges in an image?	**2**	**2**
4.	Compare Feature Detection and Feature Extraction.	**2**	**2**
5.	Illustrate the equation for camera projection matrix.	**3**	**2**
6.	Discuss correspondence problem.	**3**	**3**
7.	Compare between motion estimation using motion field and optical flow.	**4**	**2**
8.	Discuss the motion in a rigid object.	**4**	**3**
9.	With suitable example explain invariants.	**5**	**1**
10.	Define matching intensity data algorithm.	**5**	**2**

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Examine the working principle of Digital Camera.	**(14)**	**1**	**4**
	(OR)			
(b)	Inspect the following 3 - dimensional transformation with the suitable diagram with matrix representations. For • Translation. • Rotation. • Scaling.	**(14)**	**1**	**4**

12. (a)	Illustrate in detail about Corner and interest point detection with neat diagram.	**(14)**	**2**	**4**
	(OR)			
(b)	Elaborate about SIFT and SURF.	**(14)**	**2**	**4**
13. (a)	Articulate Camera models in detail.	**(14)**	**3**	**4**
	(OR)			
(b)	Inspect RANSAC Alignment in detail.	**(14)**	**3**	**4**
14. (a)	Why do we need Stereopsis method explain the techniques to perform Stereopsis?	**(14)**	**4**	**3**
	(OR)			
(b)	Describe the various methods of Horn – Schunk algorithm.	**(14)**	**4**	**3**
15. (a)	Explain in tail about visual recognition.	**(14)**	**5**	**3**
	(OR)			
(b)	Elaborate AdaBoost and Random Decision Forests.	**(14)**	**5**	**3**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Use a filter [-1 -1 -1; 0 0 0; 1 1 1] used for convolution. What edges will this filter extract from the input image?	**(10)**	**1**	**4**

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