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BTECH
(SEM V) THEORY EXAMINATION 2024-25
COMPUTER VISION

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 07 = 14

Q no.	Question	CO	Level
a.	Define edge detection in image processing.	1	2
b.	What is the Sobel operator used for?	1	2
c.	What is object labeling?	2	2
d.	What are centroidal profiles?	2	2
e.	What is the purpose of line localization in HT?	3	2
f.	Explain optical flow in motion analysis.	4	2
g.	What is the significance of multiple camera views in surveillance?	5	2

SECTION B

2. Attempt any three of the following: 07 x 3 = 21

Q no.	Question	CO	Level
a.	What is mathematical morphology? Explain its basic operations with examples.	1	2
b.	Explain the concept of skeletonization and thinning in image processing.	2	2
c.	What is ellipse detection using HT? Explain the process in detail.	3	2
d.	Explain the various projection schemes used in 3D vision.	4	2
e.	Discuss the application of active appearance models in face recognition.	5	2

SECTION C

3. Attempt any one part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	What is the significance of texture descriptors in image classification?	1	2
b.	What is watershed segmentation? Explain its relevance in texture analysis.	1	2

4. Attempt any one part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	What are Fourier descriptors? How are they used in image processing?	2	3
b.	Discuss the applications of centroidal profiles in medical imaging.	2	3

5. Attempt any one part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	Explain human iris location as a case study of Hough Transform.	3	3
b.	What is the significance of the foot of normal method in straight-line detection?	3	3

6. Attempt any one part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	What is layered motion? Discuss its significance in visual analysis.	4	3
b.	What are the applications of bundle adjustment in aerial imaging?	4	3

7. Attempt any one part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	What are the methods for detecting road markings in vehicle vision systems?	5	3
b.	Explain the process of human gait analysis in biometric identification.	5	3