

Model Question Paper
Seventh Semester B.E. Degree Examination
COMPUTER VISION

Time: 3 hours

Max.Marks: 100

Note : Answer any FIVE full questions, choosing at least **ONE** question from each **MODULE**.

Module 1

1. What is Computer Vision? Why is vision so difficult? Provide six real-world examples of computer vision and explain. **(10 Marks)**
2. With a neat diagram explain the Image sensing pipeline and its important effects. **(10 Marks)**

OR

1. Explain 2D transformation with a neat diagram. **(5 Marks)**
2. Explain in detail the Bidirectional Reflectance Distribution Function(BRDF). **(8 Marks)**
3. Illustrate with a real-world example for pinhole perspective and explain its behavior under various effects **(7 Marks)**

Module 2

1. Explain Fourier Transform. Justify its properties. **(10 Marks)**
2. Write and explain the Corner Detector and Laplacian of Gaussian algorithm. **(10 Marks)**

OR

1. Explain the popular technique used in Object Detection with a real world example. **(10 Marks)**
2. Explain K-means Clustering for Vector Quantization in detail. **(10 Marks)**

Module 3

1. Explain Epipolar Geometry in detail. **(10 Marks)**
2. Explain Euclidean Structure and Motion from two images. **(10 Marks)**

OR

1. Briefly explain the global methods for binocular fusion in detail. **(10 Marks)**
2. Explain the Projective structure and motion from two images and multiple images. **(10 Marks)**

Module 4

1. Explain background subtraction and shot boundary detection in detail **(10 Marks)**
2. Write an algorithm on 1) Incremental Line Fitting 2) K-means line fitting **(10 Marks)**

OR

1. Explain in detail linear measurements and linear dynamics. **(10 Marks)**
2. Write a short note on 1) divisive clustering 2) agglomerative clustering. **(10 Marks)**

Module 5

1. Illustrate a real-time application used in registration. **(5 Marks)**
2. Explain Koenderink's Theorem. **(5 Marks)**
3. Write a short note on 1) Face detection 2) Pedestrian detection **(10 Marks)**

OR

1. How to detect a deformable object? Explain. **(10 Marks)**
2. Write a short note with an real-time example on
1) Instance segmentation 2) Panoptic segmentation **(10 Marks)**