

Code No: 156ET

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, March - 2024

COMPUTER VISION AND ROBOTICS

(Computer Science and Engineering - IOT)

Time: 3 Hours

Max. Marks: 75

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A**(25 Marks)**

- 1.a) What is the principle of pinhole camera? [2]
- b) Explain the Light in Space. [3]
- c) What are the four steps of the edge detection? [2]
- d) How does image edge detection work? [3]
- e) Define Segmentation. [2]
- f) Explain the function of binocular fusion. [3]
- g) What are the three parts of segmentation? [2]
- h) Explain the Linear Dynamic Models. [3]
- i) Give a note on Model-Based Vision. [2]
- j) Explain the Mobile Robot Localization. [3]

PART - B**(50 Marks)**

- 2.a) Explain the Surface Color from Image Color.
 - b) Discuss the Local Shading Models. [5+5]
- OR**
3. Elaborate the A Model for Image Color. [10]
 4. Discuss the Linear Filters and Convolution. [10]
- OR**
5. Explain the Shift Invariant Linear Systems. [10]
 - 6.a) Give a brief note on Reconstruction, Human Stereopsis.
 - b) Discuss the Theoretic Clustering. [5+5]
- OR**
7. Explain the Segmentation by Graph-Theoretic Clustering. [10]
 8. Describe the EM Algorithm in Practice. [10]
- OR**
- 9.a) Explain the Hough Transform.
 - b) Discuss the Fitting Lines, Fitting Curves. [5+5]

- 10.a) Discuss the Curved Surfaces and Alignment.
b) Give a brief note on Analytical Photogrammetry. [5+5]

OR

11. Explain the Camera Parameters and the Perspective Projection. [10]

---oo0oo---

Used paper March-2024