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Question Paper Code	12322
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Fifth Semester

Artificial Intelligence and Data Science

20AIPC501 - COMPUTER VISION

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
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| 1. What is Computer vision? | <i>2,K1,CO1</i> |
| 2. Explain Histogram with an example. | <i>2,K2,CO1</i> |
| 3. Define Image Restoration. | <i>2,K1,CO2</i> |
| 4. Summarize the advantages of image enhancement. | <i>2,K2,CO2</i> |
| 5. Compare SIFT and SURF. | <i>2,K2,CO3</i> |
| 6. Illustrate edge linking through Hough transform. | <i>2,K2,CO3</i> |
| 7. Differentiate Optical flow and Lucas-kanade flow methods. | <i>2,K2,CO4</i> |
| 8. State the purpose of texture representation. | <i>2,K1,CO4</i> |
| 9. Explain the term “Markov” in MRFs. | <i>2,K2,CO5</i> |
| 10. Write down the Gaussian function. | <i>2,K1,CO5</i> |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Summarize the Computer Imaging systems and its components in detail with neat sketch. *13,K2,CO1*
- OR**
- b) Explain in detail the various types of image sensors used in image Processing. *13,K2,CO1*
12. a) Summarize the necessary steps in Affine and Projective transformation in detail. *13,K2,CO2*
- OR**
- b) Explain histogram and histogram equalization in detail with example. *13,K2,CO2*
13. a) Compare Harris and Hessian Affine in detail. *13,K2,CO3*
- OR**
- b) Discuss the Speeded up robust features (SURF) and its steps in detail with an example. *13,K2,CO3*

14. a) Explain hill climbing using Mean-Shift algorithm in detail. *13,K2,CO4*
 OR
 b) Illustrate With example region based segmentation, region splitting and merging. *13,K2,CO4*

15. a) Illustrate the importance of Classifiers in the Clustering Process using a suitable example. *13,K2,CO5*
 OR
 b) Generalize the Mixture of Gaussians in Computer visions to explain about its advantages and disadvantages. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Discuss the various dimensionality reduction details. *15,K2,CO6*
 OR
 b) Explain in detail the clustering Process with suitable examples. *15,K2,CO6*