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CBCS SCHEME

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18AI742

Seventh Semester B.E. Degree Examination, June/July 2024
Computer Vision

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Explain the Bidirectional Reflectance Distribution Function (BRDF). **(10 Marks)**
b. Briefly explain Weak-perspective projection matrix. **(10 Marks)**

OR

2 a. Why is 3D rotation not straightforward? Mention the methods and explain any one method in detail. **(10 Marks)**
b. Explain intrinsic and extrinsic parameters in detail. **(10 Marks)**

Module-2

3 a. Explain Fourier Transform. Justify its properties. **(10 Marks)**
b. Write the algorithm for Corner Detector and Laplacian of Gaussian. Explain. **(10 Marks)**

OR

4 a. Explain the concept of SIFT features. Give one real world example for the same. **(10 Marks)**
b. Describe share from texture for planes and curved surfaces. **(10 Marks)**

Module-3

5 a. Write a short note on : i) Correlation ii) Multi-Scale Edge Matching. **(10 Marks)**
b. Explain Affine Structure and Motion from two images. **(10 Marks)**

OR

6 a. Explain Natural ambiguity of the problem and Projective Structure and Motion from two images. **(10 Marks)**
b. Briefly explain the concept of binocular reconstruction. **(10 Marks)**

Module-4

7 a. Write a short note on: i) Divisive clustering ii) Agglomerative clustering. **(10 Marks)**
b. Explain the concept of Mean Shift algorithm for finding local modes in data. **(10 Marks)**

OR

8 a. How are missing data problems useful? Justify. **(10 Marks)**
b. Explain matching summary representations with Bhattacharyya coefficient. **(10 Marks)**

Module-5

9 a. Explain elements of differential geometry of curves and surfaces. **(10 Marks)**
b. Describe finding step and roof edges in range images. **(10 Marks)**

OR

10 a. Explain semantic segmentation and face recognition in detail. **(10 Marks)**
b. Explain the concept of Visual captioning in detail. **(10 Marks)**

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