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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (3D Animation & Graphics) (2012 Batch) (Sem.-8)

COMPUTER VISION

Subject Code : BTAG-803

Paper ID : [72865]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A**Q1. Give short answers of the following :**

- a. What is epipolar line? How it can be used to simplify the correspondence problem in stereo vision?
- b. What do you mean by geometric camera calibration?
- c. List different types of camera distortions.
- d. What is reflectance map? What is its use?
- e. What is laser range system? How does the range map created by laser range system different from disparity map created by stereo system?
- f. How templates can be used for object recognition?
- g. What is tracking? How is it performed?
- h. What do you mean by Silhouette?
- i. How are depth and disparity maps related?
- j. What is photometric stereo?

SECTION-B

- Q2. Describe in brief the characteristics of projection matrix.
- Q3. Explain in brief the process of obtaining shape information from shading.
- Q4. What are the main properties of correlation-based and feature-based methods for finding correspondences?
- Q5. What are intrinsic and extrinsic parameters of a camera? Describe in brief the processing of estimating these parameters.
- Q6. Show that in the case of a rectified pair of images, the depth of a point P in the normalized coordinate system attached to the first camera is $z = -B/d$, where B is the baseline and d is the disparity.

SECTION-C

- Q7. What is stereopsis? Describe in detail, how depth information can be recovered from stereo images.
- Q8. What is aspect graph? Given some model of solid's boundary, describe in detail various steps involved in constructing the corresponding aspect graph.
- Q9. Write short notes on :
- a. Space carving
 - b. Shape from optical flow