

**Time: 3 Hours****Marks: 80**

N.B.: 1) Question No.1 is compulsory.

2) Attempt any three from the remaining five questions.

3) Figures to the right indicate full marks

- Q1. Write short note on: (any four)
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|-------------------------------------|----|
| (a) Applications of Computer Vision | 5M |
| (b) Gray Level transformation       | 5M |
| (c) Data Augmentation               | 5M |
| (d) unsupervised Models             | 5M |
| (e) Voila Jones Algorithm           | 5M |
| (f) Functions available in OpenCV   | 5M |
- Q2. (a) What is histogram equalization? Why it is used. Explain its steps. 10M
- (b) Explain components of computer vision system 10M
- Q3. (a) Explain various layers of CNN Architecture. How it is different from ANN 10M
- (b) Explain Face Recognition algorithm available in opencv 10M
- Q4. (a) Explain plotting libraries used in python with examples 10M
- (b) Explain Canny Algorithm with proper steps. 10M
- Q5. (a) Describe Forward and Backward Propagation in CNN 10M
- (b) Describe Line Detection with Hough Transform. Explain Harris corner Detector algorithm in detail. 10M
- Q6. (a) Explain BoW model. Give an example 10M
- (B) Explain Face detection with proper steps. 10M
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