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)	
	(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 inn 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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