

SUBJECT CODE NO:- 8022
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E.(Computer Science Engg.) Examination Nov/Dec 2015
Computer Vision
(Revised)

[Time: Three Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

N.B

- i) Solve any two questions from each section.
- ii) Assume suitable data if necessary and state it clearly

Section – A

- Q1. a) Explain the fundamental steps in digital image processing with block diagram. 10
- b) Design compass gradient operator of size 3 x 3 to measure gradients of edges oriented in 8 directions E,NE, N,NW, W, 10
SW, S & SE .Give the form of these eight operators using coefficient values 0, 1, -1. Specify the gradient direction of
each mask.
- Q.2 a) Describe the role of pattern recognition for computer vision. Elaborate the steps in design cycle of pattern 10
recognition system
- b) Explain neural network based pattern recognition approach in detail. 10
- Q.3 a) Elaborate k-nearest neighbor clustering method for growing of objects. 10
- b) What is the problem of dimensionality reduction? How principle component analysis is useful for dimensionality 10
reduction.

Section – B

- Q.4 a) Explain the point distribution model. 10
- b) Describe different region based shape description methods. 10
- Q.5 a) Write note on : 10
- i) Points and hyper planes in projective space.
 - ii) Maximum likelihood estimation
- b) How scene reconstruction is done from multiple views using triangulation projective reconstruction and matching 10
constrains.
- Q.6 a) Differentiate between motion detection and moving object detection and location. 10
- b) What is optical flow? Discuss optical flow in motion analysis. 10