

## Answer any one of the following as the assignment

Q1. Take 5 images of different objects like: human face, animal, flower, car, plane etc. You can select images of other items, if you wish. Apply preprocessing on the images: RGB to gray and convert size of the image to  $16 \times 16$ . Next use the image matrix of  $16 \times 16$  as the MIMO channel matrix and determine received signal vector (as determined in MIMO) under the one-to-one relation for each image. In this case consider zero noise in the channel. Considering the received signal vector as the feature of each image you have to write a report. You can use any platform for coding.

### **Your report must cover the following items:**

Abstract/Objective (1/3 pages)

Basic theory of Eigen decomposition under MIMO (1.5 pages)

Flowchart of operation/ Algorithm (1 pages)

Results: 5 images in RGB form, gray scale form, table of five vectors, explanation of each part of results is essential. (2 pages)

Conclusion (1/3 pages)

Q2. Give basic concept of Wireless Sensor Network (WSN). Classify Clustering Protocols of WSN. Give the steps of LEACH and DEEP algorithm. Compare the algorithms. Implement the selection of cluster head under LEACH in any programming language.

The length of the report will be 5 pages including.

Abstract/Objective (1/3 pages)

Basic concept of WSN (1.5 pages)

Flowchart or steps of Algorithm (2 pages)

Comparison of algorithms (1 pages)

Conclusion (1/3 pages)