

### ASSIGNMENT-3

- Q. Explain how's Bayesian statistics provide reasoning under various kinds of uncertainty.
- Q. Describe A\* search technique. Prove that A\* is complete and optimal.
- Q. Give an example of a problem for which breath first search would work better than depth first search. Write the difference between these two approaches.
- Q. What is Bayesian reasoning? What does a Bayesian network represent? Explain.
- Q. Describe alpha-beta pruning and give the other modifications to the min-max procedure to improve its performance.
- Q. Explain the expectation and maximization (EM) algorithm for finding the maximum likelihood with hidden variables.
- Q. Design principles of pattern recognition system. Explain Principle component Analysis (PCA) and Linear Discriminant Analysis (LDA).
- Q. What do you understand by pattern recognition? Differentiate between structured description and symbolic description.
- a. What is an intelligent agent? Discuss any two types of intelligent agents.
  - b. Explain Steepest-ascent hill climbing algorithm. What are the problems with hill climbing algorithm?
  - c. Describe Hidden Markov model with suitable example. Also discuss its role in probabilistic reasoning.
  - d. Discuss Maximum-likelihood parameter learning for complete data with discrete models.
  - e. What do you mean by classification? Discuss the process of classification with the help of a diagram.