Paper Code: ECS-801

Roll No. ☐☐☐☐☐☐☐☐☐☐

B. Tech.
(SEM VIII) EVEN SEMESTER EXAMINATION, 2015-16
ARTIFICIAL INTELLIGENCE

[Time: 3 hrs.]   **[Max. Marks: 100]**

Note:-Attempt all questions.

1. Attempt any four parts of the following:-   **[5x4=20]**

   (a) Define the term artificial intelligence (AI), briefly.
   (b) Differentiate between acting humanly and acting rationally approach of AI?
   (c) How does neuroscience play an important role in the foundation of AI?
   (d) Explain utility based agent program in brief.
   (e) What do you understand by natural language processing? Explain your answer with an example.
   (f) Describe the role of AI in modern life.

2. Attempt any two parts of the following:-   **[10x2=20]**

   (a) Describe DFS and BFS strategies with example and compare their performances.
   (b) Explain bidirectional search with example and evaluate its performance.
   (c) Explain A* search with example and prove its optimality.

3. Attempt any two parts of the following:-   **[10x2=20]**

   (a) Write short notes on the following:
      (i) Probabilistic Theory
      (ii) Utility theory

   (b) Explain hidden Markov model with an example.

   (c) Describe the Bayesian classification technique with example.

4. Attempt any two parts of the following:-   **[10x2=20]**

   (a) What is machine learning? Describe any two supervised machine learning techniques with examples.
   (b) Differentiate between supervised learning and reinforced learning techniques. What are the draw backs of reinforced learning?
   (c) Discuss the expectation maximization technique with example.

5. Attempt any two parts of the following:-   **[10x2=20]**

   (a) Explain principle component analysis (PCA) technique in detail. Compare the PCA with the LDA.

   (b) Write short notes on the following:
      (i) Nearest neighbor rule
      (ii) K-means clustering

   (c) What is a support vector machine (SVM)? Describe the role of kernels in a SVM. Explain your answer with example.