



THEORY EXAMINATION (SEM-VIII) 2016-17

ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Max. Marks : 100

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. Explain the following:

10 x 2 = 20

- Explain the term Artificial Intelligence.
- Describe the role of Computer Vision in Artificial Intelligence.
- What do you mean by Agent Program? How do you assure that an agent program is an Intelligent Agent Program?
- Discuss the role of Machine Intelligence in game playing.
- What is Modus Ponens Rule in Propositional Logic?
- What is Turing Test?
- Write short note on state of the art of Artificial Intelligence.
- What is Pattern Recognition?
- Discuss Supervised & Unsupervised learning.
- Describe the role of Artificial Intelligence in Natural Language Processing.

SECTION – B

2. Attempt any five parts of the following questions:

5 x 10 = 50

- What is Production System? Explain the various types of production system.
- What is Probabilistic Reasoning? Also describe the role HMM in probabilistic reasoning.
- What is Clustering? Describe K-Means Clustering Algorithm.
- Explain Learning with complete data i.e. Naive Bayes Model and learning with hidden data i.e. EM algorithm.
- Describe A* Search Technique. Prove that A* is complete and optimal.
- Derive the expressions for time and space complexity of Breadth-First and Depth-First Search strategies.
- Determine whether the following argument is valid: "If I work whole night on this problem, then I can solve it. If I solve the problem, then I will understand the topic. Therefore, I will work whole night on this problem, then I will understand the topic".
- Describe Bayesian Network technique of Knowledge Representation. How does it useful in representing uncertainty knowledge?

SECTION – C

Attempt any two parts of the following questions:

2 x 15 = 30

- Explain how PCA is used in Pattern Recognition. Describe Parameter Estimation methods in Pattern Recognition.
- Translate the following sentences into formulas in Predicate Logic and Clausal Form:**
 - John likes all kind of food.
 - Apples are food.
 - Chicken is food.
 - Anything any one eats and is not killed by is food.
 - Bill eats peanuts and is still alive.
 - Sue eats everything Bill eats.
- Write short notes on following:**
 - Linear Discriminant Analysis
 - Support Vector Machine
 - Game Search

