

B. TECH.
(SEM VII) THEORY EXAMINATION 2018-19
ARTIFICIAL INTELLIGENCE

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20
- Define learning agent with the help of architecture.
 - What is Computer vision?
 - Write down the time and space complexity of DFS search strategies.
 - State soundness property of Inference.
 - Design the PEAS measure for "Satellite Agent".
 - List out the application area of machine learning.
 - Define Supervised and Unsupervised Learning in machine learning?
 - What is decision tree?
 - Differentiate between classification and regression?
 - Discuss the features of Support vector machine.

SECTION B

2. Attempt any three of the following: 10 x 3 = 30
- State the various properties of environment.
 - What is the role of NLP in AI? Illustrate the various phases in NLP.
 - Discuss the problems of Hill climbing algorithm?
 - Apply K-means algorithm for clustering data with the help of example.
 - Analysis the various feature extraction and selection methods in pattern recognition.

SECTION C

3. Attempt any one part of the following: 10 x 1
- Describe briefly the evolution of artificial intelligence.
 - List the criteria to measure the performance of different search strategies.
4. Attempt any one part of the following: 10 x 1
- Differentiate between forward and backward chaining of Inference with the help of an example.
 - What is heuristic function? Differentiate Blind search and Heuristic Search strategies.
5. Attempt any one part of the following: 10 x 1
- What is propositional logic? Define the various inference rules with the help of example.
 - What is reinforcement learning? Differentiate between active and passive reinforcement learning.
6. Attempt any one part of the following: 10 x 1
- What do you understand by Information Gain? How it is calculated?
 - What is regression? Compare between linear regression and non-linear regression?

7. **Attempt any *one* part of the following:** **10 x 1**
- (a) What do you mean by dimension reduction? Discuss principal component analysis (PCA) for dimension reduction.
 - (b) What is Bayesian Theory? Explain the role of prior probability and posterior probability in Bayesian Classification?

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