

Paper Id: **110714**

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B. TECH.
(SEM VII) THEORY EXAMINATION 2019-20
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**
- Differentiate between classification and regression.
 - Define natural language processing.
 - Describe the Turing test in AI.
 - Explain nearest neighbor rule.
 - Define backward chaining.
 - Describe best first search.
 - Define reinforcement learning.
 - Define rules of inference.
 - Explain uninformed search strategies.
 - Describe the structure of agent program with suitable example.

SECTION B

- 2. Attempt any three of the following: 10x3= 30**
- Write the application of artificial intelligence. Define intelligent agents. Describe the structure of intelligent agents.
 - Explain BFS and DFS search technique in detail. Describe A* search technique with suitable example.
 - Write a note on Linear Discriminant Analysis (LDA). Justify the use of Principle component analysis (PCA) in dimension reduction.
 - Explain supervised and unsupervised learning with suitable example.
 - Prove that following statements are inconsistent:
 - Aman loves Priya and John is not happy but her parents are happy.
 - If Aman marries Priya then Amar and her friend John will be happy.
 - Aman will marry Priya if Priya loves Aman.

SECTION C

- 3. Attempt any one part of the following: 10 x 1 = 10**
- Describe Bayesian networks. How are the Bayesian networks powerful representation for uncertainty knowledge?
 - 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.”
- 4. Attempt any one part of the following: 10 x 1 = 10**
- Define pattern recognition. Explain design principles of pattern recognition system with suitable example.
 - What is clustering? Describe k-mean clustering technique.

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5. Attempt any *one* part of the following: 10 x 1 = 10

- a. Write short notes on the following
 - i. N-queen problem
 - ii. Hill climbing search
- b. Explain Min-max procedure. Describe alpha-beta and give other modifications to the min max procedure to improve its performance.

6. Attempt any *one* part of the following: 10 x 1 = 10

- a. Illustrate decision trees learning technique using a suitable example.
- b. Explain support vector machine with suitable example.

7. Attempt any *one* part of the following: 10 x 1 = 10

- a. Describe the role of computer vision in artificial intelligence
- b. Define Hidden Markov Model. Explain how HMM can be used for speech recognition.

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