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**B.TECH**  
**(SEM VII) THEORY EXAMINATION 2021-22**  
**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**

- a. \_\_\_\_\_ n?
- b. \_\_\_\_\_
- c. What do you understand by feature extraction?
- d. What are the different properties of a task environment?
- e. Describe the First-order logic model.
- f. Describe resolution in brief.
- g. What is LISP? Why it is so popular in AI.
- h. What is the role of intelligent agent?
- i. What is the need of classification techniques in pattern recognition?
- j. Differentiate supervised and unsupervised learning.

**SECTION B****2. Attempt any three of the following: 10 x 3 = 30**

- a. What is meant by the term Artificial Intelligence? How it is difficult from natural intelligence?
- b. Discuss Branch-and-bound search algorithm.
- c. What is the difference between knowledge representation and knowledge acquisition?
- d. Explain clustering and differentiate between supervised and unsupervised learning.
- e. Describe the N-queens problem in detail. Also explain with an example.

**SECTION C****3. Attempt any one part of the following: 10 x 1 = 10**

- (a) What do you understand by natural language processing?
- (b) Explain the concept of alpha-beta pruning. write alpha-beta search algorithm.

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

- (a) Differentiate between local search and global search.
- (b) Discuss simulated annealing search algorithm with its advantages and disadvantages.

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

- (a) Define forward chaining and backward chaining with examples.
- (b) Discuss various application domains of machine learning.

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

- (a) Write short notes on support vector machine.
- (b) What is pattern recognition? Explain various steps involved in the designing of a pattern recognition system with the help of a diagram.

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

- (a) Write short notes on Bayesian classifier.
- (b) Write short notes on LDA and PCA