PAPER ID-410336

Roll No: | | | | | | | | | | | | | |

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

Time: 3 Hours ***Total Marks: 70***

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

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Compare propositional logic and predicate logic.
b. What do you understand by Natural Language Processing?
c. Write short note on Support Vector Machine.
d. Represent sentence in the Predicate form "All the children like sweets".
e. Differentiate between local search and global search.
f. Explain in brief the concept of reinforcement learning.
g. Define forward chaining and backward chaining with example.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. What is meant by the term Artificial Intelligence? How it is different from natural intelligence?
b. Explain Steepest-ascent hill climbing algorithm. What are the problems with hill climbing algorithm?
c. Define forward chaining and backward chaining with example.
d. What is machine learning? Differentiate between supervised, unsupervised and reinforcement learning?
e. Explain Nearest Neighbor rule used for classification.

SECTION C

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

(a) What is an intelligent agent? Discuss any two types of intelligent agents.
(b) What is "over fitting"? How do we overcome over fitting?

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

(a) What is Bayesian reasoning? What does a Bayesian network represent? Explain.
(b) What is pattern recognition? Explain various steps involved in the designing of a pattern recognition system with the help of a diagram.

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

(a) What is the difference between knowledge representation and knowledge acquisition?
(b) Explain Decision Tree with example.

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

(a) What are the steps to define a problem? Explain also discuss various components of a problem.

(b) Discuss various application domains of machine learning.

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

(a) Consider the following sentences:

i. John likes all kinds of food.
ii. Apples are food.
iii. Children are food.
iv. Anything anyone eats and is not killed by is food.
v. Jack eats peanuts and is still alive.
vi. Jill eats everything jack eats.

Represent these sentences in predicate logic and prove that" John likes peanuts" using deduction or resolution.

(b) Write short notes on:

i. PCA
ii. Hidden Markov Models