Printed Pages: 02 | Sub Code: NCS702

Paper Id: 110714 | Roll No. | | | | | | | | | | |

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 x10 = 20**

a. Define learning agent with the help of architecture.
b. What is Computer vision?
c. Write down the time and space complexity of DFS search strategies.
d. State soundness property of Inference.
e. Design the PEAS measure for "Satellite Agent".
f. List out the application area of machine learning.
g. Define Supervised and Unsupervised Learning in machine learning?
h. What is decision tree?
i. Differentiate between classification and regression?
j. Discuss the features of Support vector machine.

SECTION B

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

a. State the various properties of environment.
b. What is the role of NLP in AI? Illustrate the various phases in NLP.
c. Discuss the problems of Hill climbing algorithm?
d. Apply K-means algorithm for clustering data with the help of example.
e. Analysis the various feature extraction and selection methods in pattern recognition.

SECTION C

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

(a) Describe briefly the evolution of artificial intelligence.
(b) List the criteria to measure the performance of different search strategies.

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

(a) Differentiate between forward and backward chaining of Inference with the help of an example.
(b) What is heuristic function? Differentiate Blind search and Heuristic Search strategies.

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

(a) What is prepositional logic? Define the various inference rules with the help of example.
(b) What is reinforcement learning? Differentiate between active and passive reinforcement learning.

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

(a) What do you understand by Information Gain? How it is calculated?
(b) What is regression? Compare between linear regression and non-linear regression?

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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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