PAPER ID-310014

Subject Code: NBC504

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

MCA (DUAL DEGREE)
(SEM-V) THEORY EXAMINATION 2020-21
ARTIFICIAL INTELLIGENCE

Time: 3 Hours ***Total Marks: 100***

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

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a.	Give any two differences between human intelligence and artificial intelligence.
b.	What are the different levels of knowledge?
c.	Write Heuristic function for travelling salesman problem and Water jug problem.
d.	What do you mean by reinforcement learning?
e.	Write a short note on Adversarial search.
f.	What do you understand by state space representation of a problem?
g.	Briefly explain the concept of Hidden Markov model.
h.	Write Generate and Test search algorithm.
i.	With the help of example, briefly explain the concept of backward chaining.
j.	What is support vector machine? What are its types?

SECTION B

2. Attempt any *three* of the following: 10x3=30

a.	What are the various foundation areas of artificial Intelligence? Discuss.
b.	Explain the concept of Best-first search algorithm with the help of a diagram.
c.	Discuss unification and resolution algorithm for predicate logic.
d.	What do you mean by the term clustering? Explain k-means clustering.
e.	Discuss Linear discriminant analysis for two category case with example.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a.	Explain structure and types of intelligent agents.
b.	What do you mean by natural language processing? Discuss steps in natural language processing?

4. Attempt any *one* part of the following: 10x1=10

a.	Discuss and compare uninformed and informed searching techniques with their advantages and limitations.
b.	Explain Minimax search strategy with alpha-beta cutoff using suitable diagram.

5. Attempt any *one* part of the following: 10x1=10

a.	Discuss algorithm for conversion to clause form. Also convert the following to clause form- (i) Sohan is a student. (ii) Shyam is elder brother of sohan. (iii) Shyam is married to Geeta. (iv) Shyam speaks Hindi language. (v) All Indians speak Hindi language.
b.	Discuss Bayes rule and Bayesian reasoning. What does a Bayesian network represents?

6. Attempt any *one* part of the following: 10x1=10

a.	Define the term machine learning. Discuss any four application areas of machine learning.
b.	Explain the concept of Expectation Maximization algorithm for learning with hidden data.

7. Attempt any *one* part of the following: 10x1=10

a.	What do you mean by classification? Explain. State nearest Neighbor rule of classification with example.
b.	Describe various stages of pattern recognition system design cycle with the help of diagram.