Fifth Semester B.E. Degree Examination, June/July 2019
Artificial Intelligence

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What is AI technique? List less desirable properties and representation of knowledge. **(08 Marks)**

b. Explain production system with components and characteristics. List the requirement of good control strategies. **(08 Marks)**

OR

2 a. List and explain the AI problem characteristics. **(08 Marks)**

b. Explain constraint satisfaction and solve the cryptarithmetic problem :
CROSS + ROADS = DANGER. **(08 Marks)**

Module-2

3 a. List and explain the issues in knowledge Representation. **(08 Marks)**

b. State and explain the algorithm to convert predicates to clausal form. **(08 Marks)**

OR

4 a. Consider the following predicates

i) Man (Marcus)
ii) Pompeian (Marcus)
iii) born (Marcus, 40)
iv) $\forall x$; man (x) $\rightarrow$ mortal (x)
v) $\forall x$: Pompeian (x) $\rightarrow$ died (x, 79)
vi) erupted (volcano, 79)
vii) $\forall x : \forall t_1 : \forall t_2 :$ mortal (x) $\wedge$ born (x, t_1) $\wedge$ gt(t_2-t_1, 150) $\rightarrow$ dead (x, t_2)
viii) now = 1991
ix) $\forall x : \forall t : [\text{alive}(x, t) \rightarrow \sim \text{dead}(x, t)] \wedge [\sim \text{dead}(x, t) \rightarrow \text{alive}(x, t)$
x) $\forall x : \forall t_1 : \forall t_2 :$ died (x, t_1) $\wedge$ gt (t_2, t_1) $\rightarrow$ dead (x, t_2)

Prove that : $\sim$ alive (Marcus, now) **(10 Marks)**

b. What is matching in rule based system? briefly explain the different proposals for matching. **(06 Marks)**

Module-3

5 a. What is non monotonic reasoning? Explain the logics and approaches for non monotonic reasoning. **(08 Marks)**

b. Why truth maintenance systems are required? Explain different types truth maintenance systems. **(08 Marks)**

OR

6 a. Explain Dempster – Shafer theory with example. **(08 Marks)**

b. Define semantic net. Represent the following sentence using partitioned semantic net :

i) Every dog in town has bitten the constable
ii) Every dog has bitten every mail carrier. **(08 Marks)**

Module-4

7	a.	Define conceptual dependency. List goals and primitive acts with meaning.	**(08 Marks)**
	b.	Explain the scripts with components. Write the script for the Restaurant.	**(08 Marks)**

OR

8	a.	State and explain the MINIMAX algorithm with example.	**(08 Marks)**
	b.	Explain iterative deepening. Write algorithms for Depth First iterative depending and Iterative deepening A^*.	**(08 Marks)**

Module-5

9	a.	What is Natural language processing? Explain the steps in process.	**(08 Marks)**
	b.	Explain the spell checking with different techniques.	**(08 Marks)**

OR

10	a.	What is learning? Explain the Winston's learning program with example.	**(08 Marks)**
	b.	Explain the expert system and knowledge acquisition process, with example.	**(08 Marks)**