Fifth Semester B.E. Degree Examination, Aug./Sept. 2020
Artificial Intelligence

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Solve the following cryparithmatic problem DONALD + GERALD = ROBERT. **(10 Marks)**

b. Develop AO* algorithm for AI applications. **(10 Marks)**

OR

2 a. Solve water jug problem using production rule system. **(10 Marks)**

b. Explain problem characteristics with respect to heuristic search. **(10 Marks)**

Module-2

3 a. Consider the following set of well formed formulas in predicate logic :

i) Man (Marcus)
ii) Pompeian (Marcus)
iii) $\forall x$: Pompeian (x) $\rightarrow$ Roman (x)
iv) Ruler (Caesar)
v) $\forall x$: Roman (x) $\rightarrow$ layalto (x, Caesar) V hate (x, Caesar)
vi) $\forall x$: y loyalto (x, y)
vii) : $\forall t_1 : \forall y$: Man (x) $\wedge$ Ruler (y) $\wedge$ tryassassinate (x, y) $\rightarrow$loyatto (x, y)
viii) Tryassassinate (Marcus, Caesar) **(10 Marks)**

b. Write the propositional Resolution algorithm. **(10 Marks)**

OR

4 a. Write the algorithm for conversion to clause form. **(10 Marks)**

b. Distinguish forward and backward reasoning with an example. **(10 Marks)**

Module-3

5 a. Propose implementation of DFS and BFS in the context of reasoning. **(10 Marks)**

b. Explain Bayesian Networks. **(10 Marks)**

OR

6 a. Explain certainity factors and rule based system in statistical reasoning. **(10 Marks)**

b. Explain property inheritance algorithm for frames. **(10 Marks)**

Module-4

7 a. Explain CYC. **(10 Marks)**

b. Explain conceptual Dependency along with its goals and representation. **(10 Marks)**

OR

8 a. Write the algorithm for minimax (position, depth, players) and explain. **(10 Marks)**

b. Write a note on global ontology. **(10 Marks)**

Module-5

9 a. Explain spell checking technique. **(10 Marks)**

b. Explain Winston's learning program. **(10 Marks)**

OR

10 a. Explain the Augmented Transition Network with an example. **(10 Marks)**

b. Explain three types of automated discovery systems in the context of learning. **(10 Marks)**