USN [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]   **17CS562**

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)**

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