**[6180]-63**

# T.E. (Artificial Intelligence & Data Science)
## ARTIFICIAL INTELLIGENCE
### (2019 Pattern) (Semester-I) (310253)

*Time : 2½ Hours]*                                             *[Max. Marks : 70*

*Instructions to the candidates:*

    *1)*   *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*

    *2)*   *Neat diagrams must be drawn whenever necessary*

    *3)*   *Assume Suitable data if necessary.*

*Q1)* a) Explain Min Max and Alpha Beta pruning algorithm for adversarial search with example: **[9]**

    b) Define and explain Constraints satisfaction problem. **[9]**

**OR**

*Q2)* a) Explain with example graph coloring problem. **[9]**

    b) How AI technique is used to solve tic-tac-toe problem. **[9]**

*Q3)* a) Explain Wumpus world environment giving its PEAS description. **[9]**

    b) Explain different inference rules in FOL with suitable example. **[8]**

**OR**

*Q4)* a) Write an propositional logic for the statement, **[10]**

      i) "All birds fly"

      ii) "Every man respect his parents"

    b) Differentiate between propositional logic and First order logic. **[7]**

*Q5)* a) Explain Forward chaining algorithm with the help of example. **[9]**

    b) Write and explain the steps of knowledge engineering process. **[9]**

**OR**

*Q6)* a) Explain Backward chaining algorithm with the help of example. **[9]**

b) Write a short note on **[9]**

    i) Resolution and

    ii) Unification

*Q7)* a) Write a short note on planning agent, state goal and action representation. **[6]**

b) Explain different components of planning system. **[6]**

c) Explain the components of AI **[5]**

OR

**Q8)** a) What are the types of planning? Explain in detail. **[6]**

b) Explain Classical Planning and its advantages with Example. **[6]**

c) Write note on hierarchical task network planning. **[5]**

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