

T.E. (Artificial Intelligence & Data Science)
ARTIFICIAL INTELLIGENCE
(2019 Pattern) (Semester - V) (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 search procedure with an example. [9]
 b) Explain alpha beta pruning with example. [9]

OR

Q2) a) Explain how constraint propagation is carried out in CSP. [9]
 b) Explain and represent N-Queen problem as CSP. [9]

Q3) a) Write the algorithm for deciding entailment in propositional logic. [9]
 b) Explain property inheritance algorithm with example. [8]

OR

Q4) a) Consider the following sentences. [9]

- John likes all kinds of food
- Apples are food
- Chicken is food
- Anything anyone eats and isn't killed by is food
- Bill eats peanuts and is still alive
- Sue eats everything bill eats

- i) Translate these sentences into formulas in predicate logic
- ii) Prove that John likes peanuts using backward chaining
- iii) Convert the formulas of a part into clause form
- iv) Prove that John likes peanuts using resolution

b) Discuss and define following words in the context of AI. [8]

- i) Intelligence
- ii) Knowledge
- iii) Information
- iv) Logical Reasoning

Q5) a) Explain Non Monotonic reasoning and discuss Various logic associated with it. [9]
b) Explain unification algorithm used for reasoning under predicate logic with an example. [9]

OR

Q6) a) Convert following sentences into FOL representation. [9]
i) Every student who takes English passes it.
ii) John likes books and music.
iii) All elephants are gray in color.
iv) Not all students take both History and Biology.
v) Sue eats everything Bill eats.
vi) If the car belongs to John then it is green.
vii) Anything any one eats and isn't kill by food
viii) Only one student failed in History.
ix) Some students take English in summer 2020.
b) What are fuzzy membership function explain with example. [9]

Q7) a) Write short note on circumscription. [5]
b) Discuss theory of beliefs. [6]
c) What do you mean by ontology of situation calculus? [6]

OR

Q8) a) Write short note on AI architecture. [5]
b) Discuss and Analyze various planning approaches. [6]
c) Explain terms time and schedule from perspective of temporal planning. [6]

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