

Total No. of Questions : 8]

SEAT No. :

PB3786

[6262]-45

[Total No. of Pages : 2

T.E. (Computer Engineering)
ARTIFICIAL INTELLIGENCE
(2019 Pattern) (Semester- II) (310253)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer four questions 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 wherever necessary.
- 3) Assume Suitable data if necessary.

- Q1)** a) List all problem solving strategies. What is backtracking, explain with n queen problem. [8]
b) Write Minimax Search Algorithm for two players. How use of alpha and beta cut-offs will improve performance? [9]

OR

- Q2)** a) Define Game theory, Differentiate between stochastic and partial games with examples. [9]
b) Define is Constraint satisfaction problem, state the types of consistencies solve the following Crypt Arithmetic Problem. [8]

$$\begin{array}{r} \text{B A S E} \\ + \text{B A L L} \\ \hline \text{G A M E S} \end{array}$$

- Q3)** a) What is an Agent? Name any 5 agents around you explain knowledge based agent with Wumpus World.
List and explain in short the various steps of knowledge engineering process
Consider the following axioms:
If a triangle is equilateral then it is isosceles. [9]
b) If a triangle is isosceles, then its two sides AB and AC are equal.
If AB and AC are equal, then angle B and C are equal.
ABC is an equilateral triangle.
Represent these facts in predicate logic. [9]

OR

P.T.O.

- Q4)** a) Write the following sentences in FOL (using types of quantifiers) [9]
- i) All birds fly
 - ii) Some boys play cricket
 - iii) A first cousin is a child of a parent's sibling
 - iv) You can fool all the people some of the time, and some of the people all the time, but you cannot fool all the people all the time.
- b) What is Knowledge Representation using propositional logic?
Compare propositional and predicate Logic. [9]

- Q5)** a) Explain Forward Chaining and Backward Chaining. With its properties, advantages and disadvantages. [9]
- b) Explain:
i) Unification in FOL
ii) Reasoning with Default information [8]

OR

- Q6)** a) Explain FOL inference for following Quantifiers. [8]
- i) Universal Generalization
 - ii) Universal Instantiation
 - iii) Existential Instantiation
 - iv) Existential introduction
- b) What is Ontological Engineering, in details with its categories object and Model. [9]

- Q7)** a) Explain with an example Goal Stack Planning (STRIPS algorithm). [5]
- b) Explain with example, how planning is different from problem solving. [5]
- c) Explain AI components and AI architecture [8]

OR

- Q8)** a) Explain Planning in non deterministic domain. [5]
- b) Explain.
i) Importance of planning
ii) Algorithm for classical planning
- c) What is AI explain scope of AI in all walks of Life also explain future opportunities with AI. [8]

