

Total No. of Questions : 8]

SEAT No. :

P277

[Total No. of Pages : 2

[6003]-356

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt 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) List All problem solving strategies. What is backtracking, explain with n queen problem, with Branch and bound or Backtracking. [8]
- b) Explain Monte Carlo Tree Search with all steps and Demonstrate with one Example. [9]

OR

- Q2)** a) i) Explain limitations of game search algorithm, Differentiate between stochastic and partial games AND. [9]
- ii) Explain How use of alpha and beta cut-offs will improve performance of mini max algorithm? [9]
- b) Define is Constraint satisfaction problem, State the types of consistencies Solve the following Crypt Arithmetic Problem. [8]

SEND

+MORE

MONEY

- Q3)** a) What is an Agent Name any 5 agents around you Explain Knowledge based agent with Wumpus World. [9]
- List and explain in short the various steps of knowledge engineering process.
- b) Consider the following axioms: [9]
- 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.
Explain Inference in Propositional Logic.

OR

P.T.O.

- Q4) a)** Write the following sentences in FOL (any 2) (using types of quantifiers). [9]
- Every number is either negative or has a square root .
 - Every connected and circuit-free graph is a tree .
 - Some people are either religious or pious
 - There is a barber who shaves all men in the town who do not shave themselves
- b)** What is Resolution? Solve the following statement by using resolution algorithm. Draw suitable resolution graph. [9]
- Rajesh like all kind of food.
 - Apple and vegetables are food.
 - Anything anyone eats and is not killed is food.
 - Ajay eats peanuts and still alive.
- Prove that Rajesh like bananas. .
- Q5) a)** Explain Forward Chaining and Backward Chaining. With its Properties, with one. example. [9]
- b)** Explain Unification Algorithm in FOL. Solve stepwise with proper comments if $p(x, g(x))$ is equal to or not equal to $f(\text{prime}, f(\text{prime}))$ [8]
- OR
- Q6) a)** Explain FOL inference for following Quantifiers. [8]
- Universal Generalization.
 - Universal Instantiation.
 - Existential Instantiation.
 - Existential introduction
- b)** What is Ontological Engineering ,in details with its categories object and Model. [9]
- Q7) a)** Explain with an example State Space Planning. [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. [8]
- Importance of planning
 - Algorithm for classical planning
- c)** Explain Limits of AI and Future opportunities with AI. [5]

