

4. Consider the following sentences

- (i) John likes all kinds of food.
- (ii) Apples are food
- (iii) Chicken is food
- (iv) Anything anyone isn't killed by is food.
- (v) Bill eats peanuts and is still alive.
- (vi) Sue eats everything bill eats.

- (a) Translate these sentences into formulas in predicate logic.
- (b) Prove the john likes peanuts using backward chaining.
- (c) Convert the formulas of a part into clause form.
- (d) Prove that john likes peanuts using resolution

5. Write short notes on the following :

- (a) Depth first searching
- (b) Bayesian network
- (c) Reinforcement learning.

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ECS-801

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 110880

Roll No.

B.TECH.

Theory Examination (Semester-VIII) 2015-16

ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Max Marks : 100

Section-A

1. Note: Attempt all questions from this section. (2×10=20)

- (a) Explain the term Artificial Intelligence. How Artificial Intelligence is different from general intelligence?
- (b) Describe the role of Computer Vision in Artificial Intelligence.
- (c) Describe how we can use Artificial Intelligence in Natural Language Processing.
- (d) What are the basic components of propositional logic?
- (e) What is active and passive reinforcement learning?

- (f) Named out any three uninformed search strategies.
- (g) Explain the terms Universal & Existential quantifiers. Give an example of each.
- (h) State the reason why first order, logic fails to cope with that the mind like medical diagnosis.
- (i) What are the components that are needed for representing an action?
- (j) State the factors that play a role in the design of a learning system.

#### Section-B

2. Attempt any five questions from this section. (5×10=50)

- (a) Describe the various knowledge representation schemes used in AI.
- (b) Explain the statement: Breadth first search is a special case of uniform cost search.
- (c) Discuss the water jug problem with Heuristic search techniques?

- (d) Solve the Crypt arithmetic problem

CROSS  
+ ROADS

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DANGER  
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- (e) Briefly describe the meaning of knowledge representation and knowledge acquisition. What procedure is followed for knowledge acquisition?
- (f) Briefly describe the various feature extraction and selection methods in pattern recognition.
- (g) Describe the difference between language understanding and language generation with suitable example?
- (h) Prove that the following sentence is valid: "If prices fall the rate increases. If rate increases then Johnny makes a lot of money. But Johnny doesn't make a lot of money". Prove by resolution that "prices do not fall".

#### Section-C

Attempt any two questions from this section. (2×15=30)

- 3. Explain Min Max procedure. Describe alpha beta pruning and give the other modifications to the min max procedure to improve its performance.

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