

IV B.Tech I Semester Supplementary Examinations, November 2005
ARTIFICIAL INTELLIGENCE
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. (a) Write down the state space representation, production rules, and any two solutions for the water jug problem. [2+4+2]
 (b) Explain problem characteristics with examples. [6+2]
2. Trace the constraint satisfaction procedure solving the crypt arithmetic problem.
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3. (a) What are the four properties desirable in any knowledge representation? Explain them in brief. [4+4]
 (b) Taking the organization of your college as an example, represent it in
 - i. relational and
 - ii. inheritable forms. Compare their merits. [2+2+4]
4. Convert the following statements to Conceptual Dependencies
 I gave a pen to my friend
 Rama ate ice cream
 I borrowed a book from your friend
 While going home, I saw a frog. [4X4]
5. (a) List the key reasoning operations that are performed by JTMS. [8]
 (b) An example of nonmonotonic reasoning involves birds and flying. Consider the following facts:
 -Most things do not fly
 -Most birds do fly, unless they are too young or lean or have a broken wing
 -Penguin and ostriches do not fly
 -Magical ostriches fly
 -Tweety is a bird
 -Chirpy is either a penguin or an ostrich
 -Feathers is a magical ostrich
 Use one or more nonmonotonic reasoning systems answer the following:
 - i. Does Tweety fly?
 - ii. Does Chirpy fly?
 - iii. Does Feathers fly?
 - iv. Does Paul fly? [2X4]

6. (a) Search in game playing programs always proceed forward from current state to goal state. Why? Explain. [2+6]
(b) The minimax procedure is depth first and depth limited. Explain examples. [4+4]
7. (a) What is a simple transition network (STN)? [8]
(b) Differentiate between Augmented transition network and STN with relevant examples in BNF Constructs. [6+2]
8. Choose any two objects and describe in detail, seven attributes of each object which are most-discriminating Visual (7 each) and Non-visual (7 each) - Relate them to sensory perceptions without errors. [6+6+4]

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