

**IV B.Tech I Semester Supplementary Examinations, April/May 2005**  
**ARTIFICIAL INTELLIGENCE**  
**(Electronics & Communication Engineering)**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Describe with necessary diagrams, a suitable state space representation for 8 puzzle problem and explain how the problem can be solved by state space search. Show how heuristic can improve the efficiency of search.
2. (a) Explain with example AND / OR graphs.  
(b) Write down the algorithm for generate and test search.
3. (a) Explain how knowledge can be represented using declarative and procedural representations. Give examples.  
(b) Compare Forward Vs Backward reasoning.
4. (a) What are Semantic networks? Explain its features with sample semantic net.  
(b) Explain the classification of nodes in Semantic net.
5. (a) List the key reasoning operations that are performed by JTMS.  
(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 ostrichUse 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?
6. (a) What is Waltzs algorithm?  
(b) List out examples of an ambiguous figure for which the waltz algorithm would not find a unique labeling .
7. (a) What is top-down parsing and how it contrasts with bottom-up parsing.  
(b) Write a possible bottom up parsing of the sentence "The Sun rises in the East".

8. Define and explain the concept of “Learning” Describe the features of the following methods of Learning.

- (a) Memorization (Rote learning)
- (b) Direct Instruction (Taking advice)
- (c) Analogy (By example)
- (d) Induction
- (e) Deduction.

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