Code No: R5410505 **R5**

**IV B.Tech I Semester(R05) Supplementary Examinations, May/June 2010**
**ARTIFICIAL INTELLIGENCE**
**(Common to Computer Science & Engineering and Electronics & Computer Engineering)**
**Time: 3 hours** **Max Marks: 80**

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

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1. (a) Discuss about utility based agents.
   (b) Explain simple reflex agents. [8+8]

2. (a) Explain various types of hill climbing with example.
   (b) Explain disadvantages of hill climbing. [8+8]

3. What are the various problem that occur during hill climbing? How to solve them. [16]

4. Explain clearly about backing up the values in a two play search with a diagram. [16]

5. (a) Explain forward and backward chaining in propositional logic
   (b) Consider the following axioms.
   P
   $(P \wedge Q) \rightarrow R$
   $(SVT) \rightarrow Q$
   T
   Prove R using resolution in propositional logic. [10+6]

6. Consider the following sentences:
   - John likes all kinds of food
   - Apples are food
   - Chicken is food
   - Anything anyone eats and isn't killed by is food
   - Bill eats peanuts and is still alive
   - Sue eats everything Bill eats

   (a) Translate these sentences into formulas in predicate logic
   (b) Convert the formulas of part a into clause form
   (c) Prove that John likes peanuts using resolution. [6+4+6]

7. (a) Explain planning with state space search
   (b) Explain with example heuristic state space search. [8+8]

8. (a) Explain supervised learning, reinforcement learning, and unsupervised learning
   (b) Comment on the expressiveness of decision trees
   (c) What do you mean by incremental learning. [6+6+4]

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