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Total number of printed pages – 2

B. Tech  
PECS 5401

**Seventh Semester (Special) Examination – 2013**

**ARTIFICIAL INTELLIGENCE**

**BRANCH : CSE, IT**

**QUESTION CODE : D 409**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory and any **five** from the rest.  
The figures in the right-hand margin indicate marks.*

1. Answer the following questions : 2×10
  - (a) What are the branches of Artificial Intelligence ?
  - (b) How agents are classified in order to increasing generality ?
  - (c) What do you mean by knowledge engineering ?
  - (d) Differentiate between search space and state space.
  - (e) How large is the state space of 8 Puzzle problems ?
  - (f) What is environment ? Explain the properties of the environment.
  - (g) What do you mean by inference mechanism ?
  - (h) Differentiate between progressive and regressive planners with example.
  - (i) What is relaxed problem ? Explain with an appropriate example.
  - (j) Differentiate between forward chaining and back word chaining.
2. (a) How a problem is defined by four items ? Describe single state formulation. 5  
(b) What are the requirements of intelligent agent ? Discuss their role in detail. 5
3. (a) What is definite clause grammar ? Explain its use in natural language processing. 5

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- (b) Is the back propagation algorithm applied to a feed forward neural network to achieve 100% correct classification for any linearly separable set of training examples ? Justify your answer. 5
4. (a) What is the structure of rule based expert system ? Discuss the function of interface engine. 5
- (b) What do you mean by constraint satisfaction problem ? Suggest some method to find solution for this problem. 5
5. (a) List out the conditions that are to be met to apply forward chaining. What are the steps involved in forward chaining. 5
- (b) Differentiate between propositional logic and predicate logic with respect to syntax and semantics. 5
6. (a) What is partial order planner ? State its characteristics. Suggest an example with two precondition. 5
- (b) Explain the concept of detail learning from observation and explanation based learning. 5
7. (a) What is knowledge acquisition ? Briefly explain different knowledge acquisition process. 5
- (b) What do you mean by frame based expert system ? Explain with an example. 5
8. Write short notes on : 5×2
- (a) Goal based Agent
- (b) Completeness of resolution.

