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Question Paper Code : 31159

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Seventh Semester

Computer Science and Engineering

080230042 — ARTIFICIAL INTELLIGENCE

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by local maxima in search technique?
2. What are the components of problem definition?
3. What are the uses of constrained satisfaction problem?
4. What is admissible heuristic?
5. State the difference between forward and backward chaining.
6. Give an example of unification and lifting approach.
7. What are the different layers in neural network?
8. Mention some features of Reinforcement learning.
9. What is the need for syntactic analysis?
10. Why are grammars to be augmented?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the problems caused due to incomplete knowledge on the states or actions? Define each with example. (8)
- (ii) Explain in detail utility based reflex agent. (8)

Or

- (b) Develop a PEAS description of the task environment and elaborate the characteristics of environment for the medical diagnosis agent. Also design the above with a suitable agent structure.

12. (a) (i) Write in detail the learning of an agent in online search method. (8)
(ii) Explain alpha- beta pruning in detail. (8)

Or

- (b) (i) Explain online search agent working using depth first exploration. (8)
(ii) Explain Memory bounded heuristic search in detail. (8)
13. (a) Solve the given problem (Question: Prove that Col. West is a criminal) with the inference rules:
- (i) It is a crime for an American to sell weapons to hostile nations.
 - (ii) Nano owns some missiles.
 - (iii) All of its missiles were sold to it by Colonel West.
 - (iv) Missiles are weapons.
 - (v) That an enemy of America counts as "hostile";
 - (vi) West, who is an American
 - (vii) Nano, an enemy of America
 - (viii) America is a nation.

Or

- (b) Translate the following sentence into FOL:
- (i) All cats are mammals
 - (ii) Fildo is a cat
 - (iii) Fildo is a mammal
 - (iv) All mammals produce milk. (4 × 4)
14. (a) (i) Explain in detail the back propagation algorithm in detail.
(ii) Explain in detail the features of reinforcement learning.

Or

- (b) Explain in detail the following :
- (i) Expressivity of the decision trees
 - (ii) Inducing decision trees from examples
 - (iii) Choosing attribute tests
 - (iv) Performance measure of decision trees. (4 × 4)
15. (a) (i) Describe early image processing operations. (8)
(ii) Explain object recognition problem in detail. (8)

Or

- (b) Explain in detail about machine translation systems.