

Time: 3 Hours

JUNE 2015

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- **Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.**
- **Parts of a question should be answered at the same place.**

Q.1 a. Define Artificial Intelligence. State the significance of using heuristic function.

b. What is the difference between informed & uninformed search techniques?

c. Explain constraint satisfaction problem using a suitable example.

d. Define the terms Agent & Agent function.

e. Give the semantic representation of “John Loves Marry”.

f. Convert the following sentence into conceptual dependency:
I heard a lion in the jungle

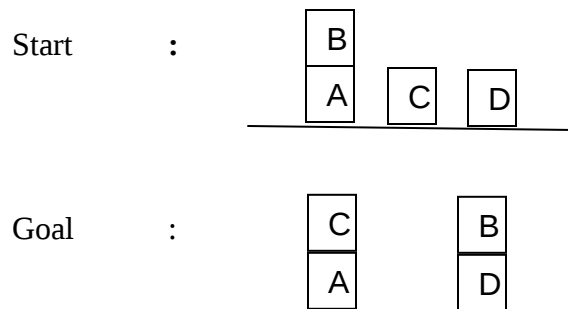
g. Write short notes on Inductive & supervised learning.

h. List any four applications of GA (7 x 4)

Q.2 a . Explain steepest hill climbing algorithm. (6)

b. How searching is used to provide solutions also describe some real world problems? (6)

c. Explain how STRIPS would solve the following problem: (6)



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Q.3 a. Describe Alpha-Beta pruning using a suitable example and give the other modifications to minmax procedure to improve its performance. (9)

b. 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.

(i) Translate these sentences into formulas in predicate logic.

(ii) Convert the formulas of part(i) into clause form

(iii) Prove that John likes peanuts using backward chaining. (9)

Q.4 a. Describe Forward & Backward chaining rule system using suitable examples in both category. (9)

b. With an example, explain the logics for non- monotonic reasoning. (9)

Q.5 a. Explain briefly how Bayesian statistics provides reasoning under various kinds of uncertainty. (6)

b. Construct semantic net representations for the following:

1. Pompenian(Marcus), Blacksmith(Marcus)
2. Mary gave the green flowered vase to her favourite cousin (6)

c. What is Hopfield Network? Explain using a simple Hopfield net, how this network operates and achieves its desirable features.? (6)

Q.6 a. Define expert systems. Discuss the architecture of the expert system. (6)

b. Write a prolog program that finds the length of a list. Explain your program with help of a suitable example. (6)

c. Explain Neuro Fuzzy Systems . Give an example where this system can be used for effectively. (6)

Q7. a. What are intelligent agents? List out some of the properties of agents. (9)

b. Define NLP. Explain how an Augmented Transition Network works using parsing of following sentence : (9)

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