(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289928 Roll No.

B.TECH

Regular Theory Examination, (Odd Sem - VII) 2016-17

ARTIFICIAL INTELLIGENCE

Time : 3 Hours *Max. Marks : 100*

Section - A

1. Attempt all parts of the following. All parts carry equal marks. (10×2=20)

a) State the significance of using heuristic functions?

b) Distinguish between state space search and plan space search.

c) List two applications of Hidden Markov model.

d) List various criterions for success in AI.

e) What is semantic analysis? Explain.

f) List various issues in knowledge representation.

g) What do you mean by local maxima with respect to search technique?

h) List down two applications of temporal probabilistic models.

i) What are the limitations in using propositional logic to represent the knowledge base?

j) Define reinforcement learning.

Section - B

2. Attempt any 5 questions from this Section. (5×10=50)

a) Explain AO* algorithm with a suitable example. State the limitations in the algorithm.

b) Explain the constraint satisfaction procedure to solve the crypt arithmetic problem.

CROSS + ROADS = DANGER.

c) What are planning graphs? Explain the methods of planning and acting in the real world.

d) What is resolution? Discuss the role of resolution in predicate logic.

e) What are various production system characteristics? Discuss the various issues involved in the design of search programs.

f) Explain in detail on the characteristics and applications of learning agents.

g) Explain unification algorithm used for reasoning under predicate logic with an example.

h) Explain the method of handling approximate inference in Bayesian Networks.

Section - C

Attempt any 2 of the following. (2×15=30)

3. a) Explain the use of Hidden Markov Models in Speech Recognition.

b) Discuss various approaches in NLP.

c) What is problem space? How problem can be defined as state space search?

4. a) Explain Min-Max algorithm with example.

b) What are the heuristic search techniques in AI? Explain any one in detail.

c) Write short note on Conceptual Dependency.

5. a) What do you mean by representing instance and ISA relationship?

b) Elaborate Forward and Backward chaining.

c) Consider the problem of learning to play tennis. Are there aspects of this learning that are supervised learning? Is this supervised learning or reinforcement learning.