CSE 321 (R-15)

Total No. of Questions :09] [Total No. of Pages : 02

III/IV B.Tech. DEGREE EXAMINATIONS, NOVEMBER- 2019

Second Semester

COMPUTER SCIENCE ENGINEERING

ARTIFICIAL INTELLIGENCE

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) Constraint satisfaction problem
   b) Why problem formulation should follow goal formulation
   c) Brief on unification
   d) Use of online search agent in unknown environment
   e) Supervised Vs Unsupervised learning
   f) Define Uncertainty? How it is resolved

UNIT-I

2. a) Illustrate a possible result of a heuristic search procedure by defining a suitable heuristic function for an eight puzzle problem.
   b) Discuss the areas of applications of AI.

(OR)

3. a) Distinguish between simple planning agent and problem solving agent.
   b) State Turing test and explain its relevance to AI.

UNIT-II

4. a) Describe the minimax algorithm with an example?
   b) Explain forward chaining algorithm with an example.

(OR)

5. Explain in details about active and passive reinforcement learning.

P.T.O

UNIT-III

6. a) Consider the following sentences:

Marcus was a man

Marcus was a Pompeian

Marcus was born in 40 AD

All men are mortal

All pompeians died the Volcano erupted in 79 AD

No mortal lives for more than 150 years

i) Convert them to clause form

ii) Answer the question “is Marcus dead now” in two different ways. Clearly state the assumptions made.

b) What is Resolution? Suggest an algorithm to resolve a set of sentences given in prepositional logic.

(OR)

7. a) Explain the Inference in Temporal model.

b) Write a short notes on Hidden Markov model.

UNIT-IV

8. a) Explain Bayesian method of reasoning?

b) Define certainty factor. What are the components of certainty factor? Explain.

(OR)

9. a) Explain Deduction method of learning.

b) Explain variable elimination algorithm for answering queries on Bayesian networks.

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III/IV B.Tech. DEGREE EXAMINATIONS, APRIL- 2019

Second Semester

COMPUTER SCIENCE ENGINEERING

ARTIFICIAL INTELLIGENCE

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) State the relationship between Intelligence and Knowledge
   b) Brief on search efficiency in terms of branching factor and total number of nodes.
   c) What is well formed formula in propositional calculus?
   d) Express 'A car without wheels is not valuable' in predicate logic.
   e) What are the features of NLP?
   f) What is over fitting?

UNIT-I

2. a) Describe the heuristic search techniques applied to hill climbing problem with an example.
   b) Explain the state space search representation of Water Jug problem.

(OR)

3. Give a suitable state search representation for 8 puzzle problem. Describe with suitable diagrams. Explain how the problem can be solved by state space search. Show how heuristic can improve the efficiency of search?

UNIT-II

4. a) Define Artificial Intelligence. Explain the techniques of A.I. Also describe the characteristics of Artificial Intelligence.
   b) A problem-solving search can precede either forward or backward. Discuss the factors that determine the choice of direction for a particular problem?

P.T.O

(OR)

5. a) Explain the concept of reinforcement learning for games.

   b) Distinguish between simple planning agent and problem solving agent?

UNIT-III

6. a) Explain standard quantifiers for first order predicate logic with example.

   b) Look at the following sentences:

      Ramu is a soldier

      Ramu is a resident of Madras

      Madras is in India

      All Indian soldiers know Hindi

      Convert them into predicate form and resolve to answer the question-
      Does Ramu know Hindi? (What additional information is needed to answer the question?)

(OR)

7. a) What is Resolution? Suggest an algorithm to resolve a set of sentences given in prepositional logic.

   b) Write the algorithm for deciding entailment in propositional logic.

UNIT-IV

8. Define and epxlain the concept of “Learning” Describe the features of the following methods of Learning: (i) Memorization (Rote learning) (ii) Direct Instruction (Taking advice) (iii) Analogy (By example) iv) Induction v) Deduction

(OR)

9. Explain about the exact inference in Bayesian networks.