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

Paper ID : 110880   **Roll No.** ☐☐☐☐☐☐☐☐☐☐☐

B.TECH.

Theory Examination (Semester-VIII) 2015-16

ARTIFICIAL INTELLIGENCE

Time : 3 Hours   *Max. Marks : 100*

Section-A

1.   Note: **Attempt all questions from this section. (2×10=20)**

 (a)   Explain the term Artificial Intelligence. How Artificial Intelligence is different from general intelligence?

 (b)   Describe the role of Computer Vision in Artificial Intelligence.

 (c)   Describe how we can use Artificial Intelligence in Natural Language Processing.

 (d)   What are the basic components of propositional logic?

 (e)   What is active and passive reinforcement learning?

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(f)   Named out any three uninformed search strategies.

(g)   Explain the terms Universal & Existential quantifiers. Give an example of each.

(h)   State the reason why first order, logic fails to cope with that the mind like medical diagnosis.

(i)   What are the components that are needed for representing an action?

(j)   State the factors that play a role in the design of a learning system.

Section-B

2.   **Attempt any five questions from this section. (5×10=50)**

(a)   Describe the various knowledge representation schemes used in AI.

(b)   Explain the statement: Breadth first search is a special case of uniform cost search.

(c)   Discuss the water jug problem with Heuristic search techniques?

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(d)   Solve the Crypt arithmetic problem

   CROSS
   + ROADS

   DANGER

(e)   Briefly describe the meaning of knowledge representation and knowledge acquisition. What procedure is followed for knowledge acquisition?

(f)   Briefly describe the various feature extraction and selection methods in pattern recognition.

(g)   Describe the difference between language understanding and language generation with suitable example?

(h)   Prove that the following sentence is valid: " If prices fall the rate increases. If rate increases then Johny makes a lot of money. But Johny doesn't make a lot of money". Prove by resolution that "prices do not fall".

Section-C

Attempt any two questions from this section.   (2×15=30)

3.   Explain Min Max procedure. Describe alpha beta pruning and give the other modifications to the min max procedure to improve its performance.

4. Consider the following sentences

    (i)   John likes all kinds of food.

    (ii)   Apples are food

    (iii)   Chicken is food

    (iv)   Anything anyone isn't killed by is food.

    (v)   Bill eats peanuts and is still alive.

    (vi)   Sue eats everything bill eats.

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

        (b)   Prove the john likes peanuts using backward chaining.

        (c)   Convert the formulas of a part inot clause form.

        (d)   Prove that john likes peanuts using resolution

5. Write short notes on the following :

    (a)   Depth first searching

    (b)   Bayesian network

    (c)   Reinforcement learning.