Oct./ BE/ Insem. - 594
B.E. (Computer Engineering)
ARTIFICIAL INTELLIGENCE AND ROBOTICS
(2015 Course) (Semester - I)

Time : 1 Hour]   *[Max. Marks :30*

Instructions to the candidate:

1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable date if necessary.*
5) *Justify your answer with an example wherever necessaey.*

Q1) a) Explain Hill climbing algorithm. Explain Local maxima, Global Maxima and plateau for an example. **[6]**

    b) Define artificial intelligence and elaborate the applications of artificial intelligence in the real world. **[4]**

OR

Q2) a) Define heuristic function and define the heuristics for 8-tile puzzle to move from initial state to goal state. Explain the A* algorithm for 8 tile puzzle.

                                                    [6]

    b) Explain iterative deepening depth first search (IDDFS) and justify its parameters based on time complexity, space complexity **[4]**

Q3) a) Apply crypt arithmotio to solve the problem and represent the state search space to solve, TWO + TWO = FOUR **[6]**

    b) Explain the components of a planning system for a simple Blocks World example. **[4]**

OR

P.T.O.

Q4) a) Represent the architecture of an expert system, label the various components in the diagram and explain **[6]**

b) Explain problem decomposition with the help of AO*. **[4]**

Q5) a) Represent the following sentences into formulas in predicate logic, **[6]**

    i) John likes all kinds of food
    ii) Apples are food.
    iii) Chicken are food.
    iv) Anything anyone eats and isn't killed by is food.
    v) Bill eats peanuts and is still alive
    vi) Sue eats. everything Bill eats.

b) Explain forward chaining and backward chaining for a simple example.
[4]

OR

Q6) a) Explain unification algorithm, clearly stating the various output of the algorithm. **[6]**

b) Represent the following sentences in conceptual dependency (CDs),**[4]**

    i) Bird Flew.
    ii) John gave a flower to Mary.
    iii) John ate pizza yesterday.
    iv) Joe is a doctor.

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