

Total No. of Questions :6]

SEAT No. :

P276

[Total No. of Pages :2

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 data if necessary.*
- 5) *Justify your answer with an example wherever necessary.*

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 interactive 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.

