

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-II Examination July 2010

Subject code: 710410**Subject Name: Introduction to Artificial Intelligence****Date: 09 / 07 / 2010****Time: 11.00am – 1.30pm****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Give five examples of facts that are difficult to represent and manipulate in predicate logic **06**

(b) How is machine learning distinguished from general knowledge acquisition? Discuss in detail with appropriate illustration. **06**

Q.2 (a) Explain in detail expert system architecture. Discuss characteristic features of expert systems. **06**

(b) Assume the following facts: **06**

Rama only likes easy courses.

Engineering courses are hard.

All the courses in the science department are easy.

ME101 is a Mechanical Engineering course.

Use resolution to answer the question, 'What course would Rama like?'

OR

(b) Represent the following sentences using knowledge representation. **06**

a) Water is a liquid between 0 and 100 degrees.

b) Water boils at 100 degrees.

c) The water in Lovex's water bottle is frozen.

d) Thumbs up is a kind of water.

e) Lovex has Thumbs up in his water bottle.

f) All liquids have a freezing point.

g) A litre of water weights more than a litre of Thumbs Up.

Q.3 (a) Solve the following crypt arithmetic problem: **06**

$$\begin{array}{r} \text{S E N D} \\ + \text{M O R E} \\ \hline \end{array}$$

M O N E Y

(b) Explain nearest neighbor algorithm using TSP. **06**

OR

Q.3 (a) Solve the following crypt arithmetic problem: **06**

$$\begin{array}{r} \text{U P P E R} \\ + \text{L O W E R} \\ \hline \end{array}$$

B O U N D

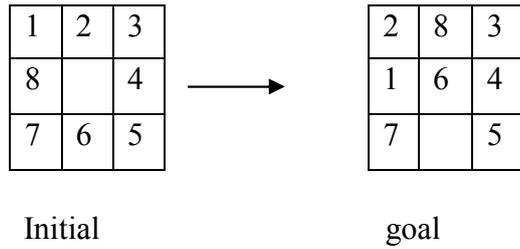
(b) Explain AO* Algorithm. **06**

- Q.4 (a)** Write the algorithm for resolution in predicate logic. **06**
(b) Explain repeat predicate with example. **06**

OR

- Q.4 (a)** Explain fail predicate with example. **06**
(b) Explain Mean-End analysis algorithm. **06**

- Q.5 (a)** Define fuzzy kernel and discuss the process of fuzzification for both linguistic and crisp values. **04**
(b) Solve the following 8 puzzle using Best First search Algorithm. **08**



OR

- Q.5 (a)** What are Neural networks? Discuss philosophy to produce artificial systems capable of sophisticated computations similar to the human brain. **06**
(b) Explain Back Propagation Training Algorithm. Enlist factors that influence BPN training algorithm. **06**
