



(Following Paper ID and Roll No. to be filled in your Answer Book)											
PAPER ID : 1079	Roll No. <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>										

B. Tech.

(SEM. VI) EXAMINATION, 2008-09
ARTIFICIAL INTELLIGENCE

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

- 1 Attempt any **four** parts of the following: **5×4=20**
- (a) Explain Intelligence and Artificial Intelligence.
How do you distinguish between the two ?
Give different definition based on various forms of Intelligence.
 - (b) Distinguish between Heuristics and Algorithms.
Support your answer with the help of example.
 - (c) Solve the water Jug Problem with the capacity of the two Jugs of 3 and 4 liters with no marking in them. Given a water supply with a large storage using these TWO Jugs, how can you separate 2 liters of water. Alos draw the tree, representing the transition of state.
 - (d) Explain the A* alogrithm and illustrate the overestimation and underestimation of heuristics.



- (e) What are semantic Nets? Explain with example how is the knowledge represented.
- (f) Discuss the basic elements of natural language processing.

2 Attempt any **two** of the following : 10×2=20

- (a) Describe the difference between language understanding and language generation with suitable examples.
- (b) What do you understand by Parsing ? Draw Parser tree and define the grammars.
A boy ate the Frog.
- (c) What do you understand by term Linguistics? What are the levels of knowledge used in language understanding.

3 Attempt any **two** of the following : 10×2=20

- (a) Explain the Wang's Algorithm and Verify the following"
 - (i) $p \vee q, p \rightarrow s, q \rightarrow s \Rightarrow s$
 - (ii) $p \rightarrow (q \rightarrow r) \Leftrightarrow (p \wedge q) \rightarrow r.$
- (b) Explain the first order Predicale logic (FOL). Explain how well formed formules (WFF) are defined.
Rewrite the following sentences in FOL.
 - (i) Coconut is a biscuit.
 - (ii) Mary is a child who takes coconut.



- (iii) John loves children who take biscuits.
 - (iv) For a triangle ABC it is given that the sum of the interior angle is 180 degree.
- (c) Explain the Resolution Algorithm and explain the soundness and completeness of resolution algorithms. Prove the following goal with the help of knowledge base.
- (i) $p \vee q$
 - (ii) $\neg q \vee t$
 - (iii) $\neg p \vee s$
 - (iv) $\neg s$.
- goal : t .

4 Attempt any **two** of the following. **10×2=20**

- (a) What is an expert System? Explain the following methodologies.
 - (i) Probabilistic techniques.
 - (ii) Fuzzy based techniques.
- (b) Explain the Dempster Shafer theory for uncertainty management in expert System with suitable example.
- (c) Discuss the advantage of expert system Architecture based on decision tree and production rules.



5 Attempt any **two** of the following:

10×2=20

- (a) Describe the various designing steps of Pattern recognition System in detail with suitable example.
- (b) Describe the symbolic description and structured description and their advantages and disadvantages over system design.
- (c) Explain the various list manipulation functions of LISP with example.