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MANIPAL INSTITUTE OF TECHNOLOGY
(Constituent Institute of Manipal University)
 MANIPAL-576104



VII SEMESTER B.E. (CS&E)
 End Semester Examination December - 2010

SUBJECT: ARTIFICIAL INTELLIGENCE (CSE – 403.2)
(ELECTIVE - 1)

TIME: 3 HOURS

MAX.MARKS: 50

Instructions to Candidates

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitably assumed.

- What is Artificial Intelligence (AI)? Discuss intelligence behaviours of an AI model with example.
1+4= 5 Marks
 - What is state space search of a problem? Write state space search to solve water jug problem.
1+4= 5 Marks
- Explain the working principles of forward and backward reasoning technique with an example.
2 Marks
 - Consider the following sentences
 - Marcus was a man.
 - Marcus was a Pompeian.
 - All Pompeians were Romans.
 - Caesar was a ruler.
 - All Pompeians were either loyal to Caesar or hated him.
 - Every one is loyal to someone.
 - People only try to assassinate rulers they are not loyal to.
 - Marcus tried to assassinate Caesar.
 Convert the sentences into clause form
4 Marks
 - Using above Axioms in clause form prove that Marcus hate Caesar using Resolution principle.
4 Marks
- Discuss the drawbacks of using Hill climbing technique. Write a Best – First search algorithm.
2+3=5 Marks
 - Write Minimax search algorithm to solve two-player game problem. Discuss the significance of 'MiniMax' in the algorithm.
4+1=5 Marks

4. a) What is Resolution? Discuss the steps required to transform a sentence into clausal form with a suitable example. 1+4=5 Marks
- b) Explain modus ponens inference rule with example, also write the truth table. 2 Marks
- c) Consider the following facts:
- a) There is a person who loves everyone in the world
 - b) Everyone is at NUS and everyone is smart
 - c) Everyone who loves Santa loves any reindeer.
- Represent these facts in Predicate Logic. 3 Marks
- 5.a) With an appropriate example, explain the knowledge representation scheme, which involves nodes and links between the nodes. 5 Marks
- b) Explain Circumscription with suitable example to deal with uncertainties in Non-Monotonic reasoning. 4 Marks
- c) What is planning in the process of solving a problem? 1 Mark
- 6.a) What are the basic objective and activities of an Expert System? Briefly discuss each one of them. 5 Marks
- b) Explain the importance of machine learning process in acquiring knowledge. Also, support suitable real time example. 3+2=5 Marks

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What is a matching technique? Discuss few efficient matching processes for production systems.

1+3=4 Marks