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Roll No.....

MCA 401

MCA IV Semester

Examination, December, 2012

Artificial Intelligence & Applications

Time : Three Hours

Maximum Marks : 70/100

Note : 1. Attempt any five questions.
2. All questions carry equal marks.

1. a) How AI programming paradigm is different from procedural programming paradigm? Explain and illustrate AI production system.

   b) Discuss various characteristics of artificial intelligence applications?

2) a) Define breadth first search and depth-first search procedures with examples.

   b) What is AI control strategy ? Why is Heuristic search required? Write down hill climbing search algorithm.

3) a) Explain production systems and requirements of good control strategy.

b) A problem solving search can proceed in either the forward or the backward direction. What factors determine the choice of direction for a particular problem?

4) a) Explain knowledge representation? Discuss various approaches to knowledge representation.

b) Translate the following statements in clausal form. Show that the predicate support (Notebook, cup) is true using resolution.

i) If x is on the top of y, y support x

ii) If x is above y and they are touching each other, x is on top of y.

iii) A cup is above a notebook.

iv) A cup is touching a notebook.

5) a) What is script? Write the script of Cinema Hall. Write the conceptual dependencies of the following :

i) Joe is a student

ii) Joe pushed the door.

b) Give two examples of problems in which solutions requiring minimum search are more appropriate than optimal solutions. Give reasons for your choices.

6) a) How would the minimax procedure have to be modified to be used by a program playing a three or four persons game rather than a two person one?

b) Find the probability of the event A occurring when it is known that some event B has occurred. From experiment, it has been determined that $P(B|A| = 0.80$, $P(A) = 0.20$ and $P(B) = 0.30$.

7) a) State and prove Baye's theorem?

b) Briefly explain the architecture of an expert system with a neat sketch and explain its components.

8) Write short notes:

i) Knowledge Acquisition

ii) MYCIN

iii) Recursive Transition net.

iv) AO* algorithm

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