



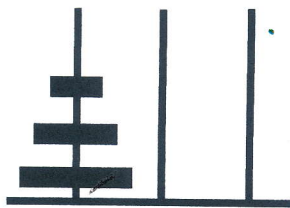
EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
THIRD EXAMINATION IN SCIENCE (2010/2011)
FIRST SEMESTER (June-2014)
CS 304 – ARTIFICIAL INTELLIGENCE
(SPECIAL REPEAT)

ANSWER ALL QUESTIONS

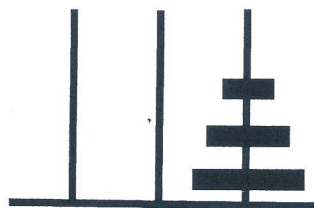
TIME: TWO HOURS

Q1)

- a) Define the term “Artificial Intelligence”?
- b) What are the goals of AI?
- c) What do you mean by the term” State Space Search”?
- d) There are 3 disks of different sizes and 3 pegs. Initially all disks are stacked on one peg with the smallest on the top and the largest at the bottom. The problem is to move entire stack from one peg to another that only one disk can be moved at a time and no disk may be places on top of a smaller one. Find out the possible moves from initial state to goal state.



Initial State



Goal State

Q2)

- a) Briefly explain the AO* algorithm with the suitable example?
- b) Write down the algorithm for Generate-and-Test?
- c) Describe the term Best-First search?
- d) Briefly describe the algorithm of “Steepest-Ascent Hill Climbing”.

Q3)

- a) What do you mean by the term “Predicate Logic”?
- b) Consider the following statements:
 - John likes all kinds of foods
 - Apples are food
 - Chicken is food

- Anything anyone eat and isn't killed by is food
 - Bill eats peanuts and still alive
 - Sue eats everything that Bill eats
- i) Translate these sentences into formulas in predicate logic.
 - ii) Prove that John likes peanuts using backward chaining.
 - iii) Convert the formulas of part (i) in to clause form.
 - iv) Using resolutions prove that John likes peanuts.

Q4)

- a) Define the term Planning.
- b) Clearly describe the major components of a "Planning System".
- c) A robot that lives in an environment with three rooms (room A, room B and room C) and with a block that he can move from room to room. The block cannot move on its own and can only be moved to a room by the robot.
Draw a simple state space diagram.