Computer Sciences
University of Technology

Date: 27/05/2012
Time: 3 hours
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Final Exam. 2011-2012
Subject: Artificial Intelligence
Class: third year
Branch: System Software

Note: answer five questions only. (For each question ten marks)

Q1# Consider the following state space:

a) Write the algorithm of the best first search then use it to find node Q.
b) Write the algorithm of the hill climbing then use it to find node Q.

Q2# Write a complete prolog program for each of the following then make tracing: (choose two only)

- Count the number of words that contain “tion” in a given list.
- Count the number of characters in a given string using external database.
- Find how many times an element occurs in a list using non tail recursion.

Q3# If you have 20 students and each student have the following fields: Name, Age(either integer or real), Address(that consist of: city name, street number, house number), Degrees, and the Class.

- Write the declaration part for the above students.
- Store a suitable data for them.
- Write suitable clauses to find the average for each student.

Q4# Describe the mean knowledge representation techniques in AI field.(with examples)

Q5# Compare between the following with examples: (choose three only)

- Predicate form and clause form.
- A algorithm and A* algorithm.
- Backtracking and recursion.
- Forward chaining and backward chaining.

Q6# what do we mean by an expert system? Describe its architecture and its components.