**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

 **Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.must.ac.ke**](http://www.must.ac.ke) **Email:** **info@must.ac.ke**

**University Examinations 2014/2015**

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE.

**CCS 3375: ARTIFICIAL INTELLIGENCE**

**DATE: AUGUST 2015 TIME: 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Using suitable examples, discuss the prolog terms (8 marks)
2. Numbers
3. Atoms
4. Variable
5. Compound terms
6. Write a program to put facts indicating that a lion, a tiger and a cow are animals into a database and to record that two of them (lion and tiger) are carnivore. (6 marks)
7. Discuss the following types of reasoning (6 marks)
8. Reasoning from signs
9. Cause and effects
10. Reasoning by analogy
11. Using a suitable examples differentiate between forward chaining and backward chaining. (6 marks)
12. Give four characteristics of forward chaining (4 marks)

**QUESTION TWO (20 MARKS)**

1. Searching is the process of looking for the solution of a problem through the sets of possibilities. Discus three conditions that must be addressed when defining a problem (6 marks)
2. Discuss the process of problem solving through search (6 marks)
3. Different search strategies are evaluated in terms of four criteria. Discuss these criteria. (8 marks)

**QUESTION THREE (20 MARKS)**

1. Discuss any two views of Al. (4 marks)
2. “Al is a multi disciplinary domain” in view of this, discuss why this statement may be true. (6 marks)
3. Using a suitable diagram, discuss the following types of agents (10 marks)
4. Reflex agent
5. Goal based agent

**QUESTION FOUR (20 MARKS)**

1. Write short notes on the following (10 marks)
2. A\*SEARCH (A star search)
3. Exhaustive blind search
4. Discuss five properties of knowledge representation language (5 marks)
5. Using a diagram show how an agent interacts with its environment. (5 marks)

**QUESTION FIVE (20 MARKS)**

1. Represent the following statements as propositions using ‘well-formed formula’ (wff): (5 marks)
2. ‘All men are people’
3. ‘If it is not raining, then it is sunny
4. Write a VP5 program that does the following:

Accept names of three beautiful ladies and three not so beautiful. Query the system for all beautiful ladies. (10 marks)

1. Briefly describe the turing test. (5 marks)