

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2018/2019**

**YEAR 4 SEMESTER 2/ YEAR 3 SEMESTER 2 SPECIAL/SUPPLEMENTARY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY/BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**HBT 2404/BIT 2319: ARTIFICIAL INTELLIGENCE**

**DATE: JANUARY 2019 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

Q1) a) Create and justify your own definition of AI (4 marks)

b) In problem solving. We have two main techniques. State and explain the two main category of search technique (4 marks)

c) Explain the following search conditions in relation to the searching as a problem solving technique.

i) Current state

ii) Goal state

iii) The solution (6 marks)

d) i) Define knowledge representation (2 marks)

ii) A knowledge representation has two aspects. State and explain the aspects (4 marks)

ii) Translate the following into first order logic (Fol) (12 marks)

a) Some dogs bark

b) All dogs have four legs

c) Everybody likes ice cream

d) All barking dogs are initaking

Q2) a) Explain the features that qualify the claim that prolog is a powerful programming language for AI (6 marks)

b) State any four social implications of AI (4 marks)

c) Briefly discuss the widely used criterion for determining the success of an AI system? Explain the working of this criterion (6 marks)

d) Why is knowledge sometimes difficult to extract from experts (4 marks)

Q3) a) Describe any four characteristics of intelligent agents (4 marks)

b) Describe predicate calculus and frames as knowledge representation formalism (10 marks)

c) In problem solving, we have two main search techniques. State and explain the two main category of the search technique (4 marks)

i) Uninformed Blind search

ii) Informed (Neuristic) search

Q4) a) Explain the meaning of the terms supervised and unsupervised learning and given example with respect to machine learning (6 marks)

b) State any two techniques used in machine learning (4 marks)

c) Briefly discuss knowledge acquisition technique (10 marks)

Q5) a) Explain any five features of expert system (10 marks)

b) Briefly discuss the different components of a learning system (5 marks)

c) What is the function of the inference engine in expert system (3 marks)

d) Discuss why agents in AI need not only be software agents (2 marks)