THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

HIGHER DIPLOMA IN COMPUTER STUDIES

ECT 3218: ARTIFICIAL INTELLIGENCE

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: FEBRUARY/MARCH 2012
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A** & **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1 (30 marks)

a) Discuss how artificial intelligence may be used in medicine and industry. (4 marks)

b) Clearly explain the four Views of AI (8 marks)

c) Give short notes on the following A.I aspects (4marks)
   i. Natural language processing

   ii. Neural network

d) Define an Expert system and explain any three components that make the system. (8marks)

e) Why is it better to design performance measures for an agent according to effects in the environment instead of behaviors of the agent? (2marks)

f) With reference to A.I explain the Turing Test. (4marks)

SECTION B (Answer any three questions)

Question Two (10 marks)

a) Explain the meaning of the term "knowledge acquisition". (2marks)

b) Describe any four knowledge representation techniques (8marks)

Question three (10 marks)

a) Formulate propositional logic sentences that explain the following concepts.

$$Q \Rightarrow P$$
$$P \Rightarrow \neg Q$$
$$Q \vee R$$

Given the semantics for the three prepositional symbols as follows
- P means "It is hot"
- Q means "It is humid"
- R means "It is raining" (6marks)

b) Discuss any two advantages of the implementation of intelligent agent technology. (4 marks)

Question four (10 marks)

a) Define an intelligent agent software (2mark)

b) Demonstrate your understanding on any five different roles of Intelligent Agents in Business and Information Infrastructure. (8marks)

Question Five (10 marks)

a) Describe what is meant by the following search strategies giving the properties of each:
   (i) state-space search,
   (ii) breadth first search,
   (iii) Informed search. (6marks)

b) Give any **two** real life examples of a search problem (4 marks)

Question six (10 marks)

a) Give any **two** examples of A.I programming languages (2marks)

b) Describe the salient features of an agent. (8 marks)