



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

HIGHER DIPLOMA IN COMPUTER STUDIES – HDIP 10A

ECT 3218: ARTIFICIAL INTELLIGENCE

END OF SEMESTER EXAMINATIONS

SERIES: DECEMBER 2011

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 one 20 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. (4marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

Question two 20 marks

- a) Explain the meaning of the term "knowledge acquisition". (2marks)
- b) Explain why Knowledge representation is key to the success of expert systems. (4marks)
- c) Describe any **four** knowledge representation techniques (8marks)
- d) Why is it better to design performance measures for an agent according to effects in the environment instead of behaviors of the agent? (2marks)

Given the semantics for the three prepositional symbols as follows

o P means "It is hot"

o Q means "It is humid"

(4marks)

Question three 20 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. (10marks)
- c) Discuss any **two** advantages of the implementation of intelligent agent technology. (4marks)
- d) Discuss any **two** disadvantages that may arise with the implementation of intelligent agent technology. (4marks)

Question four 20 marks

- a) Describe what is meant by the following search strategies giving the properties of each:
 - (i) state-space search,
 - (ii) breadth first search, (10marks)
- b) Give any **two** real life examples of a search problem (2marks)

- c) List and explain any **four** characteristics used to evaluate a search state strategy (8marks)

Question five 20 marks

- a) Define A.I. (2marks)
- b) Give any **two** examples of A.I programming languages (2marks)
- c) Describe the salient features of an agent. (8 marks)
- d) Discuss the fundamental designing goals for an agent. (8 marks)