



*(Knowledge for Development)*

**KIBABII UNIVERSITY**

**UNIVERSITY EXAMINATIONS  
2021 / 2022 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATIONS  
YEAR THREE SEMESTER ONE**

**FOR THE DEGREE OF BACHELOR OF SCIENCE  
COMPUTER SCIENCE**

**COURSE CODE : CSC360E**

**COURSE TITLE : INTELLIGENT AGENTS.**

**DATE: 18 / 11 / 2022**

**TIME: 08:00 A.M – 10:00 A.M**

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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

### QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Describe the following terms
- I. Rational Agent
  - II. Multiagent System
- [2 Marks]
- b) Differentiate between an agent and an Object. [4 Marks]
- c) Describe the **TWO** components of practical reasoning [6 Marks]
- d) Describe the **FOUR** limitations of reactive systems [4 Marks]
- e) Determine whether the following statements are **TRUE/FALSE**
- i. An intelligent agent is software that assists you, or acts on your behalf, in performing repetitive computer-related tasks
  - ii. Multi-agent systems are dependent intelligent agents that interact with each other.
  - iii. Water fall model is an agent-oriented methodology
  - iv. Coordination is a must-have functionality in any Multiagent System implementation
  - v. It can be said that in closed environments trust is implicit.
  - vi. A contract is a statement of intent that regulates behavior among organizations and individuals
- [6 Marks]
- f) List the **FOUR** components of Agent Speak architecture [4 Marks]
- g) Describe the Two Problems of Symbolic reasoning Agents [4 Marks]

### QUESTION TWO [20 MARKS]

- a) Distinguish between trust and reputation [4 Marks]
- b) Describe the disadvantages of centralized coordination. [6 Marks]
- c) Describe the Main criticism to Trust and Reputation research. [4 Marks]
- d) Describe any **TWO** examples of trust/reputation models [6 Marks]

### QUESTION THREE [20 MARKS]

- a) Distinguish between horizontal layering and vertical layering [2 Marks]
- b) Although being very diverse in application and form, robots all share three basic similarities when it comes to their construction. Describe the three similarities. [6 Marks]
- c) Describe **THREE** application areas of robots. [6 Marks]

- d) Describe the **SIX** properties of Intelligent agents. **[6 Marks]**

**QUESTION FOUR [20 MARKS]**

- a) Describe the **TWO** main viewpoints in agent development **[4 Marks]**  
b) Explain the steps followed in Prometheus agent-oriented methodologies. **[6 Marks]**  
c) Using Prometheus methodology create a solution that can solve any of the big four agenda problem in Kenya. Break down the steps clearly using Prometheus methodology for the selected problem you want to offer a solution using Multi agent-based System. **[10 Marks]**

**QUESTION FIVE [20 MARKS]**

- a) Describe the role of the following in GAIA agent-oriented methodologies **[6 Marks]**  
I. Protocols  
II. Permissions  
III. responsibilities  
b) Describe the SMART Normative systems model **[4 Marks]**  
c)  
i. Draw a diagram for Touring Machines agent architecture **[4 Marks]**  
ii. Describe the overall operation of the architecture, making you explain how the decision layers achieve the goal of reactive and proactive behaviour. **[6 Marks]**