(*Knowledge for Development*)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS
YEAR TWO SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF MASTERS OF (INFORMATION TECHNOLOGY)

COURSE CODE : MIT 823

COURSE TITLE : ARTIFICIAL INTELLIGENCE

DATE: 23/11/2022 TIME: 8.00 A.M – 11.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

SECTION A (COMPULSORY)

QUESTION ONE [20 MARKS]

(a) Explain the minimax algorithm along with the different terms. (6 Marks)

(b) Discuss a heuristic function as used in search algorithms (4 Marks)

(c) Discuss how artificial intelligence can be useful in fraud detection. (10 Marks)

SECTION B – Attempt two questions from this Section

QUESTION TWO [20 MARKS]

(a) (i) Distinguish between breadth first search and best first search in artificial intelligence (2 Marks)

(ii) Give an explanation on the difference between strong AI and weak AI (2 Marks)

(b) Describe each of the following types of intelligence:

(i) Linguistic intelligence (2 Marks)

(ii) Spatial intelligence (2 Marks)

(iii) Interpersonal intelligence (2 Marks)

(c) Explain the five levels of Model of Statistical Reasoning (10 Marks)

QUESTION THREE [20 MARKS]

(a) Explain each of the following search algorithms

(i) A* algorithm (2 Marks)

(ii)Uniform cost search (2 Marks)

(iii) Bidirectional search (2 Marks)

(b) Imagine an AI robot that can engage spontaneously in a wide variety of conversational topics, can do the dishes and can act in very life-like ways by expressing emotion and judging human reactions. This robot is most likely considered artificial general intelligence.

Explain this phenomenon (4 Marks)

(c) Discuss the importance of game theory in artificial intelligence. (10 Marks)

QUESTION FOUR [20 MARKS]

(a) Explain the five types of knowledge in Artificial Intelligence (AI) (10 Marks)

(b) Explain the following types of searches

(i) Depth First Search (2 Marks)

(ii) Breadth First Search (2 Marks)

(c) Discuss three types of artificial intelligence based on:

(i) Capabilities (3 Marks)

(ii) Functionalities (3 Marks)

QUESTION FIVE [20 MARKS]

(a) (i) Describe four things that rationality of an agent depends on as applied to artificial intelligence. the rationality of an agent (4 Marks)

(ii) Distinguish between inductive and Deductive reasoning – giving an example in each case. (6 Marks)

(b) Describe the five steps followed in Natural Language Processing (NLP) (10 Marks)