

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



PAN AFRICA CHRISTIAN UNIVERSITY

DIPLOMA OF INFORMATION COMMUNICATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT: COMPUTING AND INFORMATION TECHNOLOGY

COURSE CODE: DICT 0214

COURSE TITLE: INTRODUCTION TO ARTIFICIAL INTELLIGENCE

EXAM DATE: DECEMBER, 2022

TIME: FRIDAY 5PM-8PM

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Three questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculator permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A

(Answer ALL questions in this section)

QUESTION ONE

- a) Consider that you are running an E-commerce website. You have a long list of products (in millions) available, and you want to eliminate the duplicate product names that might be listed under different categories. For example, there are two different products named iPhone X and Apple iPhone 10 both mean the same product, but why do we need different names. Your final task is to rename all the duplicate names to one common name. But firstly, you need to find out the products which are having duplicate names. Explain **THREE** ways you will use to approach this problem **[6 Marks]**
- b) Explain any **TWO** types of agent programs in artificial intelligence **[4 Marks]**

SECTION B (Answer Any Three (3) Questions)

QUESTION TWO

- a) With clear examples, describe how artificial intelligence is applied in fraud detection **[6 Marks]**
- b) Demonstrate **ONE** algorithm tool used by Facebook for face recognition **[4 Marks]**

QUESTION THREE

- a) Let us say you work as a data scientist for the LinkedIn engagement team. And let us say you have a news feed ranking algorithm. As we all know, when each user logs in,

they are presented with a news feed with various posts which are ordered using the ranking algorithm). Illustrate how you will measure the success of the news feed ranking algorithm

[4 Marks]

- c) Assume that you want to write a program that can play the card game of poker against other players. Classify this program according to **SIX** complexity dimensions

[6 Marks]

QUESTION FOUR

- a) Explain any **THREE** main components of expert system

[6 Marks]

- b) Discuss the minimax algorithm along with the different terms.

[4 Marks]

QUESTION FIVE

- a) Explain any **FIVE** different ways to evaluate the performance of the Machine Learning model.

[5 Marks]

- b) Identify any **THREE** types of machine learning

[3 Marks]

- c) Evaluate **ONE** technique to avoid overfitting in neural networks

[2 Marks]

QUESTION SIX

- a) Describe Pattern Recognition structure that can be used to improve Kenya curriculum education system

[4 Marks]

- b) Discuss **THREE** critical factors that the manufacturing firms should take into consideration when designing an artificial intelligence system that can lead to a firm's meeting the objectives of maximizing production flow and minimizing the cost of investment.

[6 Marks]