



# SCOTT CHRISTIAN UNIVERSITY

## SCHOOL OF PROFESSIONAL STUDIES

### BACHELOR OF INFORMATION COMMUNICATION TECHNOLOGY

#### UNIT CODE/NAME: BCT 421: ARTIFICIAL INTELLIGENCE

**January - April 2021/2022 End Semester Exam - Time: 2 Hours**

**Instructions: Answer Question ONE (Compulsory) and any other TWO questions.**

#### QUESTION ONE

- a) Explain the two goals of Artificial Intelligence? (4 Marks)
- b) State the differences between programming with AI and programming without AI (6 Marks)
- c) Define intelligent agent and describe the simple reflex agent. (2 Marks)
- d) Define the term AI technique and list any 3 characteristics of AI technique (4 Marks)
- e) Convert into predicate logic  
"All Kisii's like eating bananas.  
John is a kisii.  
John likes eating bananas."  
(4 Marks)
- f) With the help of a diagram briefly explain how intelligent agents work (5 Marks)
- g) Briefly explain the components of Intelligence (5 Marks)

#### QUESTION TWO

- a) Define the term Expert system (2 Marks)
- b) Draw a typical architecture of an Expert system (6 Marks)
- c) Reasoning in artificial intelligence has two important forms, Inductive reasoning, and Deductive reasoning. Both reasoning forms have premises and conclusions, but both reasoning is contradictory to each other. Using an example, differentiate these two kinds of reasoning.  
(4 Marks)

d) List the limitations of expert systems

(3 Marks)

**QUESTION THREE**

a) Differentiate between fuzzy logic and boolean logic

(2 Marks)

b) State 3 situations where it is not advisable to use fuzzy logic

(3 Marks)

c) Fuzzy algorithms have been applied to various fields, from control theory to Artificial Intelligence. Briefly describe the algorithm and steps involved in developing an air conditioning system with 5-level fuzzy logic system

( 10 Marks)

**QUESTION FOUR**

a) Define Artificial Intelligence

(2 Marks)

b) Describe any 4 applications of Artificial Intelligence

( 8 Marks)

c) Describe any 5 types of Intelligence and show examples where they apply

(5 Marks)

**QUESTION FIVE**

a) Briefly explain the two components of Natural Language Processing

(4 Marks)

b) With the help of a diagram explain the steps involved in Natural Language processing?

(5 Marks)

c) Explain the techniques applied in Natural Language processing

(6 Marks)