



# **MURANG'A UNIVERSITY OF TECHNOLOGY**

## **SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY**

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN  
INFORMATION TECHNOLOGY**

SCS 059 – INTRODUCTION TO ARTIFICIAL INTELLIGENCE

DURATION: 2 HOURS

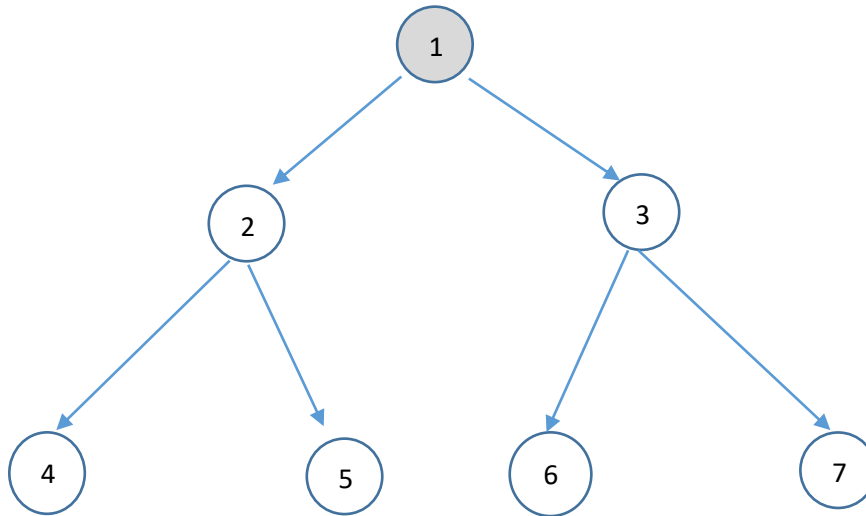
**Instructions to candidates:**

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

**SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION**

**QUESTION ONE (30 MARKS)**

- a) Define the following terms in relation to AI (5marks)
- (i) Artificial intelligence
  - (ii) Intelligent Agent
  - (iii) Robotics.
  - (iv) Natural language processing.
  - (v) Computer vision.
- b) Highlight six application areas of A.I (6marks)
- c) Determine the paths that depth first search and breadth first search would follow in the following case. (6marks)



- d) Outline the four types of knowledge that can be represented in a knowledge representation system. (4marks)
- e) There are several programming languages that can be used to program A.I systems, Highlight reasons why python is the most popular of all those programming languages. (4marks)
- f) Distributed Artificial intelligence has become so popular nowadays. Justify why this is the case. (5marks)

## **SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION**

### **QUESTION TWO (20 MARKS)**

- a) With the aid of a diagram, demonstrate problem solving in Artificial intelligence. (10marks)
- b) Murang'a county disaster management team has decided to acquire robots to help them in managing disasters in hazardous areas. Explain three types of robots that they can acquire. (6marks)
- c) Outline the categories of conversational agents present today. (4marks)

### **QUESTION THREE (20 MARKS)**

- a) Discuss the various methods of machine learning and choose one that can be used to train a robot, make sure you justify your answer. (8marks)
- b) Explain two categories of planning algorithms used in Artificial intelligence. (2marks)
- c) In Artificial intelligence Agents are classified based on their degree of that perceived intelligence and capability. Describe the various classes of Agents present in Artificial Intelligence. (10marks)

### **QUESTION FOUR (20 MARKS)**

- a) Discuss the process of Natural language processing in Artificial intelligence. (6marks)
- b) You have been contracted by Murang'a level five hospital to develop an expert system for them. Discuss the steps you would follow in this task. (8marks)
- c) Elucidate the categories of computer vision. (6marks)