MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

DIRECTORATE OF TVET

SECOND YEAR FIRST TERM EXAMINATION FOR

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY

COMPUTER APPLICATION II

DATE: 22/7/2022   **TIME: 11.30-2.30 PM**

INSTRUCTIONS

1. You should have the following for this examination:-
   - Answer booklet
2. Answer four of the six questions in this question paper.
3. All the questions carry equal marks
4. Do not write on this question paper

Candidates should check the question paper to ensure that all the pages are printed as indicated and that no questions are missing

QUESTION ONE

a)   Explain the term intelligence as used in A.I.   (1 mark)

b)   Discuss any four properties of agent environments.   (8 marks)

c)   Explain the following types of intelligence.

    i.   Logical-Mathematical intelligence   (2 marks)

    ii. Bodily-Kinesthetic intelligence   (2 marks)

    iii. Spatial intelligence   (2 marks)

QUESTION TWO

a)   Using examples explain the following types of Rule Based Systems

    i.   Forward chaining   (2 marks)

    ii. Backward chaining   (2 marks)

b)   Explain four benefits of G.I.S use in the today's world.   (8 marks)

c)   Differentiate between *Perception* and *Reasoning* components of A.I and how they can be implemented.   (3 marks)

QUESTION THREE

a)   Outline four uses of GIS in the world today.   (4 marks)

b)   Distinguish between each of the following sets of agent environments. Give an example in each case.

   i.   Dynamic and Static environments   (4 marks)

   ii.   Discrete and Continuous Environments   (4 marks)

c)   Artificial intelligence systems have been put in good use in most areas of ICT. However, there are some challenges associated with the use A.I powered systems. Outline two challenges that are as a result of this.   (3 marks)

QUESTION FOUR

a)   Explain four components of G.I.S   (4 marks)

b)   Outline three applications of A.I   (3 marks)

c)   Explain the following types of Knowledge acquisition as used in A.I.

   i.   Observational Learning   (2 marks)
   ii.   Perceptual Learning   (2 marks)
   iii. Episodic Learning   (2 marks)
   iv.   Motor Learning   (2 marks)

QUESTION FIVE

a)   Justify the statement that "Artificial Intelligence is Multi-disciplinary"   (3 marks)

b)   Difference between Human and Machine Intelligence.   (4 marks)

c)   Explain Natural Language Processing as used in AI.   (2 marks)

d)   Explain three challenges facing speech recognition technology.   (6 marks)

QUESTION SIX

a)   Various organizations around the globe have a embarked on a mission to implement A.I enabled systems. Discuss any four advantages of A.I as used in today's daily chores.

                                                                                     (8 marks)

b)   Explain the meaning of the abbreviation G.I.S used in computer applications.   (3 marks)

c)   Outline two ways of using GIS in each of the following.

   i.   Remote sensing   (2 marks)
   ii.   Cartography   (2 marks)