



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

University Examinations 2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY

SUPPLEMENTARY EXAMINATION

DIT208: ARTIFICIAL INTELLIGENCE

Instructions: Attempt Question one and any other two from Section B

Question One

- a. Explain the term intelligent agent. (2 marks)
- 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)
- d. Describe the functionality of the following AI components and how they are implemented.
 - i. Perception (2 marks)
 - ii. Reasoning (2 marks)
 - iii. Action (2 marks)
- e. 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)

SECTION B

Question Two

- a. Using examples explain the following types of Rule Based Systems
 - i. Forward chaining (4 marks)
 - ii. Backward chaining (4 marks)
- b. Discuss ***Machine vision and image processing*** as a key area in Artificial intelligence based on the following titles. (12 marks)
 - i. Overview

- ii. State of the art
- iii. Current Applications
- iv. Potential Applications
- v. Challenges and Open Issues
- vi. Conclusion

Question Three

- a. Discuss **robotics** concept as a key area in Artificial intelligence based on the following titles. (10 marks)
 - i. Overview
 - ii. State of the art
 - iii. Current Applications
 - iv. Potential Applications
 - v. Challenges and Open Issues
 - vi. Conclusion
- b. Explain three major goals of Artificial Intelligence. (6 marks)
- c. Outline any four limitations of expert systems. (4 marks)

Question Four

- a. Differentiate programming without A.I and with A.I (6 marks)
- b. Discuss any four applications of A.I (8 marks)
- c. Explain the following types of Knowledge acquisition as used in A.I.
 - i. Auditory Learning (2 marks)
 - ii. Episodic Learning (2 marks)
 - iii. Motor Learning (2 marks)

Question Five

- a. With the aid of a well labeled diagram, explain the components of an expert system. (10 marks)
- b. Justify the statement that “Artificial Intelligence is Multi-disciplinary” (4 marks)
- c. Difference between Human and Machine Intelligence. (4 marks)
- d. Explain Natural Language Processing as used in AI. (2 marks)

Ends