



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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UNIVERSITY EXAMINATIONS 2023/2024

FOURTH YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY, BACHELOR OF SCIENCE IN DATA SCIENCE, BACHELOR OF SCIENCE IN COMPUTER SCIENCE, BACHELOR OF SCIENCE IN COMPUTER TECHNOLOGY, BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY, BACHELOR OF SCIENCE IN COMPUTER SECURITY AND FORENSICS AND BACHELOR OF EDUCATION ARTS

CIT 3451: PROFESSIONAL AND ETHICAL ISSUES IN COMPUTING

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Define the following terms (3 Marks)
- Ethical Dilemma
 - Responsible computing
 - Copy right.
- b) Explain what is meant by the term professionalism in the context of the IT industry (4 Marks)
- c) Highlight two ways of improving reliability and safety in usage of computer technology (4 Marks)
- d) Distinguish between computer crime and computer abuse (4 Marks)



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

- e) Highlight three tools used for visualizing and analyzing biases in machine learning models (3 Marks)
- f) Discuss any two ethical implications of using big data analytics in decision-making processes (4 Marks)
- g) Discuss the importance of data privacy and security in computing (4 Marks)
- h) Define intellectual property rights and their significance in computing. (4 Marks)

QUESTION TWO (20 MARKS)

- a) Explain the steps involved in ethical decision-making in computing. (8 Marks)
- b) In the future, augmented reality (AR) will be extensively used in education to enhance learning experiences. However, concerns arise about the potential for data privacy breaches and the ethical implications of collecting and analyzing students' behavioral data. As a futurist, explain three ways you propose for balancing the benefits of AR in education with the need to protect students' privacy and ensure responsible data use? (6 Marks)
- c) Discuss three key aspects provided by the Kenya Data Protection Act 2019 (6 Marks)

QUESTION THREE (20 MARKS)

- a) Ethical dilemmas in computing professionalism and ethics can arise in various situations. Discuss three real-world examples illustrating ethical dilemmas in computing (6 Marks)
- b) You are tasked with analyzing a dataset that includes highly sensitive personal information. How would you ensure responsible handling, storage, and disposal of this data to protect individuals' privacy and comply with data protection regulations? (6 Marks)
- c) Imagine you are developing a machine learning model to predict job performance based on historical employee data. However, you notice that the dataset predominantly consists of male employees. How would you address this gender bias in the dataset? (4 Marks)
- d) Explain two reasons that could make an insider breach confidentiality of a company's data. (4 Marks)



QUESTION FOUR (20 MARKS)

- a) Gucci is a large clothes outlet for leading brands in many cities. The company is considering creating a "try-it-online" web site for customers to visualize through the web site how clothes look on themselves. Gucci is among the first company to provide an online provision of this type. Explain how Gucci can protect its intellectual property for the new service using:
- i. Trademarks (3 Marks)
 - ii. Copyrights and design rights (3 Marks)
 - iii. Domain names (3 Marks)
- b) An organization uses an artificial intelligence system to make automated decisions about job applications. How can the organization ensure transparency, fairness, and compliance with data protection laws in the context of automated decision-making? (6 Marks)
- c) Discuss the importance of diversity and inclusion in computing environments (5 Marks)

QUESTION FIVE (20 MARKS)

- a) Provide three examples of professional development activities that computing professionals can engage in to enhance their ethical awareness and decision-making skills. (6 Marks)
- b) Max works in a busy organization. His favorite film was being televised. Since he could not watch it at that particular time he decided to record the film broadcast on TV for later personal viewing. Was his action a copyright infringement? Present your argument (4 Marks)
- c) Identify ethical challenges associated with emerging technologies such as artificial intelligence, blockchain, or biotechnology (6 Marks)
- d) Discuss any four importance of ethics in computing (4 Marks)