

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS

MAIN CAMPUS

THIRD SEMESTER, 2017 ACADEMIC YEAR

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
COMPUTER SECURITY AND FORENSICS**

COSF 125: COMPUTER, LAW AND ETHICS

STREAM: [Y1S2]

TIME: 2 Hours

EXAMINATION SESSION: JAN-APRIL

DATE: 2017

INSTRUCTIONS

Answer **QUESTION ONE** and any other **TWO** questions

QUESTION 1 (COMPULSORY)

(30 Marks)

- a. Define the following terms as applied in computing.
 - a. Strongly differentiated profession **(2 marks)**
 - b. Software informed consent as advanced by Miller. **(2 marks)**
 - c. Collegiality. **(2 marks)**
 - d. Peer review. **(2 marks)**
 - e. General moral reasoning **(2 marks)**
- b. You are designing and are about to launch a mobile phone app which will seek to understand the emotional condition of the user, using multiple inputs such as motion sensing, facial expression recognition, voice stress measurement and the analysis of entered text. Its declared purpose is to enable services to interact more empathically with users. You propose to monetize it by serving ads at times when

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the user is more likely to buy. Your "backers" have raised a concern that this app will be able to diagnose depression, and that in consequence you may be storing substantial amounts of sensitive personal information. Discuss this problem from the viewpoints of both data protection law and ethics. **(5 marks)**

- c. Professionals tend to have clients, not customers. Explain. **(3 marks)**
- d. Explain in what ways computing professionals resembles recognized professions such as medicine, law, engineering, counseling, and accounting. **(3 marks)**
- e. When making ethical decisions, computing professionals can rely on specific guidance from codes of ethics, such as the ACM Code of Ethics. Using a fictional example below, provide a decision analysis report applying the ACM Code of Ethics approach in your decision analysis report. **(5 marks)**

Scenario: Vanguard Corporation plans to monitor secretly the Web pages visited by its employees, using a data mining program to analyze the access records. Chris, an engineer at Vanguard, recommends that Vanguard purchase a data mining program from Robin, an independent contractor, without mentioning that Robin is Chris's domestic partner. Robin had developed this program while previously employed at Chui Corporation, without the awareness of anyone at Chui

- i. Discuss **FOUR** purposes that a code of ethics can serve. **(4 marks)**

QUESTION TWO (20 MARKS)

- a. Based on the below case study, discuss **FOUR** types of moral responsibilities in computing. **(4 marks)**

In the early 1980s Atomic Energy of Canada Limited (AECL) manufactured and sold a cancer radiation treatment machine called the Therac 25, which relied on computer software to control its operation. Between 1985 and 1987, the Therac-25 caused the deaths of three patients and serious injuries to three others. Who was responsible for the accidents? The operator who administered the massive radiation overdoses, which produced severe burns? The software developers who wrote and tested the control software, which contained several serious errors? The system engineers who neglected to install the backup hardware safety mechanisms that had been used in previous versions of the machine? the manufacturer, AECL? or Government agencies?.

- b. Discuss the **THREE** kinds of moral reasons in ethical decision making for computing professionals. **(3 marks)**
- c. When making ethical decisions, computing professionals can rely on **TWO** methods. Explain these methods. **(2 marks)**
- d. Define codes of ethics as used in computing. **(2 marks)**
- e. Explain Logical Malleability and Informational Enrichment in Searching for Ethics in computing. **(4 marks)**

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- f. Explain **TWO** examples of informational enrichment in the society. (4 marks)
- g. Explain how Informational enrichment in computing affects ethical, legal practices and concepts. (4 marks)

QUESTION THREE (20 MARKS)

- a. Although the computing professions meet many criteria of other strongly differentiated professions, they are still deficient in significant ways. Explain **TWO** of these ways. (4 marks)
- b. While most spamming is not illegal, even honest spamming is considered unethical by many people. Explain **THREE** reasons why it is considered unethical. (3 marks)
- c. There exist **EIGHT** specific professional responsibilities/considerations contained in the ACM Code of Ethics and Professional conduct that an ACM member is expected to practice. Discuss these specific professional responsibilities/considerations. (8 marks)
- d. Explain how Informational enrichment in computing affects ethical, legal practices and concepts. (5 marks)

QUESTION FOUR (20 MARKS)

- a. Name **FOUR** bodies that have developed code of ethics for computing professionals. (2 marks)
- b. Discuss the general moral imperatives (fundamental ethical considerations) as contained in the ACM Code of Ethics and Professional conduct that an ACM member is expected to practice. (8 marks)
- c. Discuss **TWO** Principles involving compliance with the Code as contained in the ACM Code of Ethics and Professional conduct that an ACM member is expected to practice. (4 marks)
- d. Discuss **SIX** organizational leadership roles whether in the workplace or in a volunteer capacity contained in the ACM Code of Ethics and Professional conduct that an ACM member is expected to practice. (6 marks)

QUESTION FIVE (20 MARKS)

- a. In accordance with the commitment of computing professionals to the health, safety and welfare of the public, software engineers shall adhere to eight Principles as highlighted in the software engineering code of ethics and professional practice(short version). Discuss any **SIX** of these Principles. (6 marks)
- b. Discuss **FOUR** responsibilities of the computing professionals. (8 marks)

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- c. Discuss the following bodies that have developed the code of Professional conduct for computing professionals.
 - i. Association for Computing Machinery(ACM). **(3 marks)**
 - ii. Software engineering code of ethics and professional practice (short version). **(3 marks)**