



(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR
END OF SEMESTER EXAMINATIONS
YEAR FOUR SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF
BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)**

COURSE CODE: BIT 421

**COURSE TITLE: PROFESSIONAL, ETHICAL AND LEGAL
ISSUES IN COMMPUTING**

DATE: 28/09/2021

TIME: 9.00 A.M-11.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (COMPULSORY)**[30 MARKS]**

- a. Define the following concepts as used in the study of professional, legal and ethical issues in computing.
- i. Ethics [1 mark]
 - ii. Professionalism [1 mark]
- b. Using relevant examples differentiate between **computer Crime** and **cybercrime**. [4 marks]
- c. Explain why it may not be ease to fully fix most technological related issues using our courts? [5 marks]
- d. State the copyright law and explain TWO condition a copyright must fulfil before registration. [4 marks]
- e. You have established a new technological-based company that deal with production of both computer hardware and software. Explain the guidelines that you will apply to protect the following company products:
- i. hardware [2 marks]
 - ii. Source code or software. [2 marks]
- f. Give any TWO reasons why a license should be valid for a particular length of time or be renewed every now and again? [2 marks]
- g. Explain any THREE characteristics that define an IT professional. [6 marks]
- h. What is the contribution of computer ethics to the ethical discourse? Show how the recent expert attention in computer ethics is reshaping the ethical perspective. [3 marks]

QUESTION TWO**[20 MARKS]**

- a. What are the main steps followed when making an ethical choice? [4 marks]
- b. Distinguish between consequence-based and rule-based as principles of moral judgment. [4 marks]
- c. How has the concept of computer hacking changed from its use before the advent of the internet and today? [2 marks]
- d. Discuss any TWO functions of computer codes of ethics to computer professions. [4 marks]
- e. What the distinction between copyright infringement and piracy is as applied to copyright law? [2 marks]
- f. Explain the following types of laws in relation to information protection.

- i. Statute law [2 marks]
- ii. Tort law [2 marks]

QUESTION THREE

[20 MARKS]

- a. An engineer needed a program to perform a series of complicated calculations. He found a computer programmer capable of writing the program, but would only hire the programmer if he agreed to share any liability that may result from an error in the engineer's calculations. The programmer said he would be willing to assume any liability due to a malfunction of the program, but was unwilling to share any liability due to an error in the engineer's calculations. What are legal implication in the scenario? [2 marks]
- b. Justify the following arguments
 - i) Idea of intellectual property contradicts the idea of free culture in software development. [2 marks]
 - ii) Ethical values and legal principles are usually closely related, but ethical obligations typically exceed legal duties. [2 marks]
- c. State as accurately as you can FOUR of the eight principles of the 1998 Data Protection Act and briefly explain the reason for having each of these principles. [4 marks]
- d. Ethical issues are not sufficient enough to solve problems related to computing. This has led to IT Professionals to develop codes of ethics for their members. Briefly outline the roles of the codes of ethics to computing field. [4 marks]
- e. What moral obligations that are earned when one becomes a member of a professional body such as the ACM, BCS or IEEE, and how would you justify these moral obligations? [4 marks]

QUESTION FOUR

[20 MARKS]

- a. Differentiate between code of ethics and ethical systems as used in the study of professional ethics. [2 marks]
- b. Briefly explain the concepts of *privacy*, *secrecy* and *confidentiality* [3 marks]
- c. Under what condition will one copyright or patent or apply a trade mark to his software products [3 marks]
- d. What is the consequentialist justification for laws that give ownership and control of software to individuals or corporations (proprietary software)? What is the basic dilemma in giving

individuals the ownership and control of software they wrote? Is there any alternative to working with privately owned (proprietary) software? [6 marks]

- e. What kind of ethics is computation ethics (CE)? Discuss the classification dilemma of computer ethics [6 marks]

QUESTION FIVE

[20 MARKS]

- a. Differentiate between Meta-ethics and normative ethics. [2 marks]
- b. What's the difference between open and corporate whistle blowing? Is it legal to whistle blow in the UK? [3 marks]
- c. Explain the concept of ethical hacking. Is hacking a skill or a profession? Discuss. [3 marks]
- d. Fourth year computing students were invited in a profession discussion seminar. Many students made their submissions on the article "*The Case of the Killer Robot*" one of the popular case study document that involve entirely fictitious persons and institutions. Silicon Valley was chosen as the location for the accident because Silicon Valley is an icon of high technology. Below is the Cast of Characters as outlined in the scenario.

- *Alex Allendale, Attorney, hired to defend Randy Samuels.*
- *Jan Anderson, former programmer and analyst at Silicon Techtronics. She opposed the use of the waterfall model on the robot project and was fired for her honesty.*
- *Turina Babbage, president of the Association for Computing Machinery (ACM). She announces an investigation by the ACM into violations of the ACM Code of Ethics by employees at Silicon Techtronics.*
- *Robert Franklin, reporter for the Silicon-Valley Sentinel Observer. He interviewed Professor Harry Yoder in order to see how an ethicist would view the developments in the killer robot case. The interview was published in the Sentinel-Observer's Sunday magazine.*
- *Horace Gritty, Professor of Computer Science and Related Concerns at Silicon Valley University. He sees poor interface design as a primary cause of the killer robot tragedy.*
- *Sandra Henderson, graduate student at Silicon Valley University. She assisted in the investigation into quality assurance procedures at Silicon Valley University.*
- *Ray Johnson, Robotics Division Chief at Silicon Techtronics. The Robotics Division needed a successful robot.*
- *Martha, anonymous newspaper source. She is the insider at Silicon Techtronics who gave the Silicon Valley Sentinel- Observer information about the group dynamics on the Robbie CX30 robot project.*
- *Bart Matthews, robot operator. A faulty computer program caused a Robbie CX30 robot to strike him dead.*
- *Roberta Matthews, widow of Bart Matthews.*
- *Jane McMurdock, Prosecuting Attorney for the City of Silicon Valley. She brought the manslaughter charges against Randy Samuels.*

- Mabel Muckraker, reporter for the Silicon Valley Sentinel- Observer. She was put on the killer robot story because of her reputation as an effective investigative reporter.
- Bill Park, Professor of Physics at Silicon Valley University. He confirmed that Randy Samuels misinterpreted the robot dynamics equations.
- Randy Samuels, programmer. He wrote the program code that caused the Robbie CX30 robot to oscillate wildly, killing the robot operator, Bart Matthews.
- Sam Reynolds, CX30 Project Manager. Ray Johnson was his immediate boss. His background was in data processing, but he was put in charge of the Robbie CX30 project, much to Ray Johnson's chagrin. He was committed to the waterfall model of software development.
- Robbie CX30, the robot. Robbie never had an unkind thought about anyone, yet he turned into a savage killer.
- Wesley Silber, Professor of Software Engineering at Silicon Valley University. He conducted a review of software quality assurance procedures at Silicon Techtronics.
- Sharon Skinner, Professor of Software Psychology at Silicon Valley University. She saw Randy Samuels as a task-oriented person who was overly sensitive about criticism.
- Valerie Thomas, Attorney, hired by Sam Reynolds.
- Michael Waterson, President and CEO of Silicon Techtronics. Placed Sam Reynolds in charge of Robbie CX30 project as a cost-saving measure. He contributed generously to Jane McMurdock's re-election campaign. He hired Dr. Silber to conduct an investigation into software quality assurance at Silicon Techtronics.
- Max Worthington, Chief Security Officer for Silicon Techtronics. He monitored electronic mail communications among the employees and thus exposed Cindy Yardley.
- Ruth Witherspoon, programmer-analyst and spokesperson for the "Justice for Randy Samuels" committee. She defends Randy Samuels on the grounds that Silicon Techtronics was legally obligated to deliver a safe robot.
- Cindy Yardley, Silicon Techtronics employee and software tester. She admitted to faking software tests in order to save the jobs of her co-workers.
- Harry Yoder, Samuel Southerland Professor of Computer Technology and Ethics. He examines the tension between individual and corporate responsibilities in an interview published by the Sentinel-Observer's Sunday magazine. All of the persons and institutions named in Silicon Valley are purely fictitious.

A student X from Kibabii University was reward by the panellists as the best student who gave unquestionable arguments on the case based on legal, ethical and professional aspects or dimensions as portrait in the scenario.

- i. Outline the ethical issues as raised in student X submissions [4 marks]
- ii. Outline the legal issues as raised in student X submissions [4 marks]
- iii. Outline the professional issues as raised in student X submissions [4 marks]