ПАМІВІА UПIVERSITY
OF SCIENCE AND TECHNOLOGY

Faculty of Computing & Informatics

Informatics Department

QUALIFICATION : BACHELOR OF INFORMATICS ; BACHELOR OF COMPUTER SCIENCE ; BACHELOR OF COMPUTER SCIENCE (CYBER SECURITY)	
QUALIFICATION CODE: 07BAIT; 07BCMS; 07BCCY	LEVEL: 6
COURSE: ETHICS FOR COMPUTING	COURSE CODE: EFC621S
DATE: NOVEMBER 2022	SESSION: 1
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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THIS QUESTION PAPER CONSISTS OF 4 PAGES

(Excluding this front page)

Instructions for the candidate

1. Answer **ALL** questions.
2. When writing take the following into account: The style should inform than impress, it should be formal, in third person, paragraphs set out according to ideas or issues and the paragraphs flowing in a logical order.
3. Information should be brief and accurate.
4. Please ensure that your writing is **legible**, **neat** and **presentable**.

SECTION A   [60 MARKS]

QUESTION 1   [45 marks]

a) What is ethics?   2 marks
b) There are growing concerns in technology ethics. Discuss six concerns of information   18 marks
   technology ethics.
c) Discuss the three basic principles of Technology Ethics   6 marks
d) State two harms and two benefits of privacy   4 marks
e) Ethical lenses [frameworks] help you spot and identify ethical issues. Briefly explain   15 marks
   five frameworks that can help you to spot ethical issues:

QUESTION 2   [15 marks]

a) Discuss the concept of the digital divide.   5 marks
b) What evidence is there of the digital divide at both the global level and social level?   4 marks
c) Other scholars such as Mark Warschauer argue that the term "digital divide" is not   6 marks
   helpful. Give three reasons why this may be so.

SECTION B   [40 marks]

SOFTWARE ENGINEERING CODE OF ETHICS

Preamble
- Software engineers have opportunities to do good or do harm
- Software engineers ought to be committed to doing good
- Eight principles identify key ethical relationships and obligations within these relationship
- Code should be seen as a whole, not a collection of parts
- Concern for the public interest is paramount

Eight Principles Identify Morally Responsible Relationships
- Public
- Client and employer
- Product
- Judgment
- Management
- Profession
- Colleagues
- Self

Act Consistently with Public Interest
1.01 "Accept full responsibility for own work"
1.02 Balance competing interests
1.03 Approve software only if it is safe
1.04 Disclose actual/potential dangers
1.05 "Cooperate in efforts to address" public concerns
1.06 "Be fair and avoid deception in all statements"

1.07 Consider factors that diminish access to software
1.08 "Volunteer professional skills to good causes"

Act in Best Interest of Client, Employer
2.01 Act within areas of competence
2.02 Don't use software obtained illegally
2.03 Only use property in authorized ways
2.04 Ensure documents are approved
2.05 Respect confidentiality
2.06 Promptly report problems with project
2.07 Report issues of social concern
2.08 Refuse outside work detrimental to job
2.09 Put employer's/client's interests first, unless overriding moral concern

Ensure Products Meet Highest Standards
3.01 Aim for "high quality, acceptable cost and a reasonable schedule," making trade-offs clear
3.02 "Ensure proper and achievable goals"
3.03 Face up to "ethical, economic, cultural, legal and environmental" issues
3.04 Ensure you are qualified for proposed work
3.05 Use appropriate project methodologies
3.06 Follow the most appropriate professional standards
3.07 "Strive to fully understand the specifications"
3.08 Ensure the specifications are correct and approved
3.09 "Ensure realistic quantitative estimates of cost, scheduling, personnel, quality and outcomes"
3.10 "Ensure adequate testing, debugging, and review of software and related documents"
3.11 "Ensure adequate documentation"
3.12 Develop software and documents that respect privacy of those affected by software
3.13 Use only accurate data appropriately acquired
3.14 Maintain data integrity
3.15 Use same standards for software maintenance as software development

Maintain Integrity in Professional Judgment
4.01 "Temper all technical judgments by the need to support and maintain human values"
4.02 Understand and agree with documents before endorsing them
4.03 Remain objective when evaluating software or related documents
4.04 Do not engage in deceptive financial practices
4.05 Disclose conflicts of interest
4.06 Do not participate in decisions in which you, your employer, or your client has a potential conflict of interest

Promote Effective Project Management
5.01 Ensure good project management procedures
5.02 Ensure software engineers know standards
5.03 Ensure software engineers know policies and procedures for protecting confidential information
5.04 Take employees' abilities into account before assigning work
5.05 Ensure reasonable estimates are made
5.06 Give full and accurate information to potential employees
5.07 Pay employees fairly
5.08 Do not unjustly prevent a qualified person from taking a job
5.09 Work out fair intellectual property agreements
5.10 Provide employees charged with misconduct due process

5.11 Do not ask someone to do anything violating the Code

5.12 "Do not punish anyone for expressing ethical concerns about a project

Advance the Profession

6.01 Help create an environment supporting ethical conduct

6.02 "Promote public knowledge of software engineering"

6.03 Participate in professional activities

6.04 Support others who are trying to follow this Code

6.05 Do not promote self-interest at expense of profession, client, or employer

6.06 Obey all laws unless there is an overriding public interest

6.07 Do not deceive others regarding the characteristics of software

6.08 Take responsibility for finding, correcting, and reporting errors in software and documentation

6.09 Ensure others know you are committed to the Code and what that means

6.10 Do not associate with businesses and organizations that are in conflict with Code

6.11 Understand violating the Code is inconsistent with being a professional

6.12 Share concerns about Code violations with the people involved

6.13 "Blow the whistle" when no alternative to reporting significant Code violations

Be Fair to and Supportive of Colleagues

7.01 "Encourage colleagues to adhere to this Code"

7.02 "Assist colleagues in professional development"

7.03 Give others the credit they deserve

7.04 Be objective when reviewing the work of others

7.05 Give colleagues a fair hearing

7.06 Help colleagues remain aware of work practices

7.07 Do not unfairly interfere with another's career, but protect the public interest

7.08 Bring in experts for situations outside your own area of competence.

Participate in Lifelong Learning

8.01 Stay current with developments in field

8.02 Improve ability to create high quality software

8.03 Improve ability to produce high quality documentation

8.04 Improve understanding of software and documentation used in work

8.05 Improve knowledge of relevant standards

8.06 Improve knowledge of this Code and its application

8.07 Do not treat others unfairly because of prejudices

8.08 Do not influence others to break the Code

8.09 "Recognize that personal violations of this Code are inconsistent with being a professional software engineer

QUESTION 3   **[40 marks]**

Consider the Software Engineering Code of Ethics given below and answer the questions that follow

Using the Software Engineering Code of Ethics above, analyse the following cases

a)   **Case: Software Recommendation**   *[10 marks]*
     Sam Shaw asks for free advice on LAN security Prof. Smith answers questions and
     recommends top-ranked package. Prof. Smith does not disclose she has financial
     interest in company producing top-ranked package. Another package was given a
     "best buy" rating Did Prof. Smith do anything wrong?

b) **Case: Child Pornography** [10 marks]
Joe Green a system administrator. He has been asked to install new software package on Chuck Dennis's computer. Green not been authorized to read other people's emails or personal files. Green sees suspicious-looking file names He opens some of Dennis's files and discovers child pornography. What should he do?

c) **Case: Anti-Worm** [10 marks]
Internet plagued by new worm that exploits hole in popular operating system Tim Smart creates anti-worm that exploits same security hole Tim's anti-worm fixes PCs it infects. It also uses these PCs as launch pad to reach new PCs. Tim launches anti-worm, taking pains to keep it from being traced back to him. The anti-worm quickly spreads through Internet, infecting millions of computers System administrators around the world combat the anti-worm. Did Tim do anything that is ethically wrong?

d) **Case: Consulting Opportunity** [10 marks]
Jean works in support organization for Acme Corporation. Many Acme customers downgrading their level of support East Dakota gives Jean opportunity to run a training class similar to that provided by Acme Jean tells no one at Acme. Jean develops materials at home on own time. Jean takes paid vacation to teach class. Did Jean violate the ethical code of conduct given above?

END OF QUESTION PAPER