namibia university
OF SCIEnCE AnD TECHnOLOGY
Faculty of Computing & Informatics

Informatics Department

QUALIFICATION : BACHELOR OF INFORMATICS ; BACHELOR OF COMPUTER SCIENCE ; BACHELOR OF COMPUTER SCIENCE (CYBER SECURITY)	
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COURSE: ETHICS FOR COMPUTING	COURSE CODE: EFC621S
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DURATION: 3 Hours	MARKS: 100

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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THIS 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 [60 marks]

a) Explain any five (5) characteristics of a profession. [10 marks]

b) Discuss whether there is a natural right to privacy for individuals at the workplace. [10 marks]

c) Discuss the challenges posed by new technologies in protecting Intellectual property rights [10 marks]

d) The Sullivans have a baby girl. Both work and they are concerned about performance of the full-time nanny. They purchase a program that allows monitoring through the laptop's camera placed in the family room. They do not inform the nanny that she is being monitored.

    i. Using the Rule Utilitarian Framework, evaluate the ethical implications of the Sullivans' decision. [10 marks]

    ii. Using the Virtue Ethics Framework, evaluate the ethical implications of the Sullivans' decision. [10 marks]

e) Should software be patented? What are the arguments in favour and against? [10 marks]

SECTION B [40 marks]

QUESTION 3 [40 marks]

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

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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

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

a) **Case: Gaming Decision**   [10 marks]

You are the product manager of a small computer game company. Your company has just bought another small game company that was developing three new games.
You find that one is complete and ready to sell. It is very violent and demeaning to women. It would probably sell a million copies. You must decide what to do with the game. Give some options and give arguments for and against them.

    (i)   What will you do? [5 marks]

    (ii)   Why? [5 marks]

b) **Case: Protecting Personal Data**   [10 marks]

Your customer is a community clinic that works with families with problems of family violence. It has three sites in the same city, including a shelter for battered women and children. The director wants a computerized record and appointment system, networked for the three sites. She wants a few laptop computers on which staffers can carry records when they visit clients at home and stay in touch with clients by email. She asked about an app for staffers' smartphones by which they could access records at social service agencies. At the shelter, staffers use only first names for clients, but the records contain last names and forwarding addresses of women who have recently left.

c) **Case: Webcams in School Laptops**   [10 marks]

As part of your responsibilities, you oversee the installation of software packages for large orders. A recent order of laptops for a local school district requires webcam software to be loaded. You know that this software allows for remote activation of the webcam.

d) **Case: Specifications**   [10 marks]

You are a relatively junior programmer working on modules that collect data from loan application forms and convert them to formats required by the parts of the program that evaluate the applications. You find that some demographic data are missing from some forms, particularly race and age. What should your program do? What should you do?

END OF QUESTION PAPER