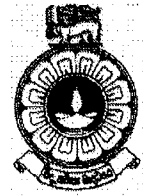


The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering



Study Programmes	: Bachelor of Science Honours in Engineering Bachelor of Software Engineering Honours
Name of the Examination	: Final Examination
Course Code and Title	: EEM6201- Professional Practice EEM6202 -Professional Practice
Academic Year	: 2024/25
Date	: 18, February 2026
Time	: 0930-1230hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
 2. This question paper consists of **Five (5) questions** in **Four (4) pages**.
 3. Answer ALL questions. All questions carry equal marks.
 5. Answer for each question should commence from a new page.
 6. This is a Closed Book Test (**CBT**).
 7. Answers should be in clear hand writing.
 8. Do not use Red colour pen.
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Q1

Assume that you are newly hired as an IT Executive in a mid-sized software company that develops solutions for healthcare clients. During your first month you had to face some difficult situations such as

- Use of unlicensed software tools by some developers
- A Senior Engineer asks you to approve a test report you were not involved in
- Project documentation is incomplete and inconsistent
- A client shares confidential patient data

Based on this scenario answer the questions below.

- (a) Identify and describe three (3) Professional Practice issues in the given scenario. (6 marks)
- (b) State and justify three (3) actions you would take to uphold good professional practice. (6 marks)
- (c) Explain two (2) ways that improper handling of confidential patient data violates professional practice. (8 marks)

Q2

A startup builds an AI-powered language learning app. After deploying the system, the startup faced two issues:

1. A developer copies UI icons from Google Images without permission
2. Another developer tries to patent an algorithm created during work hours under his/her own name

Based on this scenario answer the questions below.

- (a) Identify and explain three (3) types of Intellectual Property relevant to the scenario. State your assumptions. (6 marks)
- (b) Explain three (3) legal or ethical risks the company faces if these issues continue. (6 marks)
- (c) Recommend two (2) preventive measures the company should implement to avoid similar IP violations with justifications. (8 marks)

Q3

An organization encourages remote work and allows employees to use personal devices to access internal systems. Recently, a security incident occurred due to weak passwords and unverified software installed on personal laptops.

- (a) Define what professional responsibility is in the context of information security and explain its importance with a practical example. (6 marks)
- (b) Describe two security risks introduced by using personal devices for organizational work. (4 marks)

- (c) Analyze how inadequate security practices can affect organizational operations, clients, and public trust. (4 marks)
- (d) Propose two security policies that balance organizational security with employee convenience and ethical practice. (6 marks)

Q4

A startup AI company named *MediAI Solutions*, develops an AI-driven clinical decision support system that predicts the likelihood of getting a stroke in patients. The system uses Electronic Health Records (EHRs) collected from hospitals and from real-time wearable devices. Due to lack of data for model training, a publicly available data set has been used which does not contain any context related information.

The system stores data on cloud servers and due to the urgency, the development team is planning to deploy the system in EU countries without conducting a formal Data Protection Impact Assessment (DPIA). The system uses deep learning techniques for modeling and classifies patients into different risk categories of getting a stroke. Further it is noted that there is a lower prediction accuracy for elderly female patients but has not publicly disclosed this limitation.

As a Software Engineering consultant specializing in AI governance, critically analyze the scenario using:

- Sri Lanka Data Protection Act No. 9 of 2022
- EU AI Act
- IEEE Code of Ethics

And answer the below questions.

- (a) Analyze the legal obligations of MediAI Solutions under the Sri Lanka Data Protection Act with specific reference to lawfulness of processing and use of data, and cross-border data transfers. (5 marks)
- (b) Identify the risk classification of the system based on the EU AI Act with justification. (5 marks)
- (c) Describe four compliance requirements before EU market deployment of the system. (4 marks)
- (d) Critically assess the ethical implications regarding lack of explainability, demographic biasness and influence on medical decision-making. Use specific principles from the IEEE Code of Ethics to support your analysis. (6 marks)

Q5

A rural community in a developing region has unreliable access to electricity. The local school, medical clinic, and small businesses are affected, particularly after sunset. The community council has asked your engineering team to devise a sustainable solution for reliable, affordable energy that can be maintained locally.

Based on this scenario, answer the following questions.

- (a) Clearly state the *need* that has prompted the request from the community and translate this need into a *precise engineering problem*, identifying at least three technical requirements or constraints that must be addressed in the solution. (6 marks)
- (b) List three possible technical solutions to address the energy problem and classify whether each of the proposed solution involves *routine solutions*, *innovation by development*, or *innovation by context*, and justify your classification briefly. (6 marks)
- (c) Before actual system implementation it is always better to have a virtual model or a physical prototype model. Compare and contrast the two different models with respect to the given scenario. (4 marks)
- (d) Identify two ethical or social responsibility issues engineers should consider when proposing a solution for this community. (4 marks)

End of the Paper