



GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY

Faculty of Engineering
Department of Civil Engineering

BSc Engineering Degree
Semester 5 Examination – May 2023
(Intake 38 – All Streams)

CE 3142 – PROFESSIONAL ETHICS

Time allowed: 3 hours

22 May, 2023

INSTRUCTIONS TO CANDIDATES

This paper contains 5 questions on 5 pages

Answer **any FOUR (4)** questions only

This is a closed book examination

This examination accounts for 70% of the module assessment. The total maximum mark obtainable is 100. The marks assigned for each question and parts thereof are indicated in square brackets

If you have any doubt as to the interpretation of the wordings of a question, make your own decision, but clearly state it on the script

Assume reasonable values for any data not given in or provided with the question paper, clearly make such assumptions made in the script

All examinations are conducted under the rules and regulations of the KDU

This Page is Intentionally Left Blank

Question 1

- a) Ethical principles are beneficial for the development and growth of an industrial/commercial organization. How can this be achieved through the owners, workers and clients?

[10 marks]

- b) A new technology is being launched which is better for the company as well as for the clients. However, if this is brought into use, a lesser manpower is required for the organization. The owner now has to decide whether he wants to treat his clients with good services or be loyal to his employees who have helped the company grow.

In the above situation what would be the most ethical solution to be adopted?

[15 marks]

[Total 25 marks]

Question 2

As an Ethical Obligation, Engineers are expected to ensure sustainable management of earth's resource and minimize adverse environmental impacts of their engineering works for the sake of present and future generations.

- i. Describe how this requirement can be met through the conducting of an Environmental Impact Assessment (EIA) for a large infrastructure development project.

[10 marks]

- ii. Taking the Uma Oya multipurpose engineering project as an example, describe the reasons for the environmental problems that resulted from this project, and how these could have been overcome.

[15 marks]

[Total 25 marks]

Question 3

- a) Engineering Codes of Ethics states that “Engineers shall perform professional services only in the areas of their competence”. Describe what is meant by this clause, and the consequences that can arise if this clause is violated by not complying with its requirements, giving two examples.

[13 marks]

- b) Engineering Codes of Ethics requires that Engineers shall always act in such a manner as to uphold and enhance the honour, integrity, and dignity of the profession, while safeguarding public interest at all times. Explain the impact that this Clause has in the public perception of the Engineering profession in Sri Lanka

[12 marks]

[Total 25 marks]

Question 4

The primary cause for major engineering disasters in the past, has been the violation of professional ethics, and the main violations can be considered as:

- | | |
|---|------------------|
| i. Failure to safeguard life and property | [9 marks] |
| ii. Corporate goals over-riding Engineering advise and concerns | [9 marks] |
| iii. Failure to point out wrong practices i.e “whistleblow” | [7 marks] |

Considering the following disasters, give examples of how ethical violations contributed to these major engineering calamities:

- (a) The Volkswagen environmental violation in the USA from 2009 to 2016
- (b) The Bhopal gas leak
- (c) The McDonald Douglas DC-10 disaster

[Total 25 marks]

Question 5

Emerging technologies are technologies that are new, innovative, and still in development, and are expected to have a large socioeconomic impact. However, they also give rise to certain ethical dilemmas. Considering the following “new” technologies, comment on the positives and negatives of their commercial usage.

- a. Driverless vehicles [5 marks]
- b. Biometric technology [5 marks]
- c. Robot priest [5 marks]
- d. AI weaponry [5 marks]
- e. Unmanned Aerial Vehicles (UAV) [5 marks]

[Total 25 marks]

End of question paper

