

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF INDUSTRIAL TECHNOLOGY**

DEPARTMENT OF ELECTRONIC ENGINEERING

BACHELOR OF ENGINEERING (HONS) DEGREE

MAY 2013

**TEE 2205 PROFESSIONAL ENGINEER IN SOCIETY AND
INDUSTRY**

Duration of Examination – 3 Hours

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 3 printed papers and 8 questions.
 2. Answer any FIVE questions.
 3. Each question carries 20 marks.
 4. Start the answers for each question on a fresh page.
 5. Use relevant concrete examples to support your answers.
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QUESTION 1

- a) Describe 5 methods of innovation using appropriate examples. [10]
- b) List the 5 macro-environmental forces that can affect the running of a business. [5]
- c) Draw a labeled diagram to demonstrate how an organisation's mission statement can be devolved to low level employee tasks. [5]

QUESTION 2

- a) What does is the difference between nature and nurture? [2]
- b) Illustrate the two concept's difference in the context of learning. [6]
- c) Compare Engineering and Science with respect to nature, activity outcome and operational environment using a table. [6]
- d) Science and Engineering are said to be symbiotic in practice explain why this is so using two practical examples. [6]

QUESTION 3

- a) State 2 differences between Training and Education. [4]
- b) Give an outline of the three major theories of learning [12]
- c) Comment on the criticism against these theories of learning as a way of evaluating educational activity. [4]

QUESTION 4

- a) List 5 macro-environmental factors that affect the running of a business. [5]

- b) Describe in detail how these environmental factors could affect the running of a company that develops, fabricates, packages and then sells 12-Volt DC power supply circuits using imported tools and components. [15]

QUESTION 5

- a) What does the acronym MDG represent? [1]
- b) List the 8 MDGs. [8]
- c) Briefly state the idea behind the formulation of these MDGs (include important dates) [3]
- d) Select any 4 MDGs and illustrate how the Electronic engineering profession can positively contribute toward the attainment. [8]

QUESTION 6

- a) What is ideation? [2]
- b) Using the linear funnel ideation model and an example idea describe how the idea can be turned into a product. [6]

- c) State any 5 ideas that have been suggested to MyStarbucksIdea web site. [10]

- d) Give 2 advantages such communities have over the normal suggestion box found in public in generating business competitiveness? [2]

QUESTION 7

- a) Illustrate Heinrich's 5-domino theory for the cause of accidents using practical examples. [10]
- b) What are ethics? Illustrate 3 example situations where the law of the land and ethics contradict one another. [7]
- c) Using a practical Electronic Engineering example illustrate the importance of training as a way of reducing accidents [3]

QUESTION 8

- a) What are ethics Illustrate 3 example situations where the law of the land and ethics contradict. [3]
- b) Briefly compare and contrast deontological and moral relativistic views of ethics. [6]
- c) Outline any four elements in the IEEE's Code of Ethics and provide example situations of where each could apply. [8]
- d) State the three themes of the Kantian view of ethics [3]

END OF PAPER