



**HIGHER EDUCATION CERTIFICATE
END OF SEMESTER EXAMINATIONS - APRIL 2025**

PROGRAMME: HEC

YEAR/SEM: YEAR 1/SEMESTER 2

COURSE CODE: FDN 1205

NAME: INTRODUCTION TO ENGINEERING SCIENCE

DATE: 2025-04-28

TIME: 2:00-5:00PM

INSTRUCTIONS TO CANDIDATES:

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

DO NOT WRITE ANYTHING ON THE QUESTION PAPER

Section A Attempt ALL Questions (Each question carries 4 marks)

Question 1:

Explain briefly four contributions made by chemical Engineers in our communities

Question 2:

?Identify three ways how rocks can be carefully investigated during oil discovery

Question 3:

As a science, architecture has suffered over time substantial transformations and completions. Give at least two reasons responsible for the transformations.

Question 4:

Explain briefly how use of public transport in cities can control pollution

Question 5:

Outline four steps that have to be undertaken before you become a qualified Engineer

Question 6:

Identify at least four types of cement that are common on construction sites in your country

Question 7:

Identify at least four career opportunities for petroleum Engineers

Question 8:

Constructions as a whole are made by man, are used by man and are placed in the environment under the influence of natural factors. Give decisive factors that influence the way constructions are planned.

Question 9:

In most countries around the world use of plastic bags is so much prohibited. Briefly explain why the plastic bags are so much discouraged in our environment

Question 10:

A good Engineer should at least demonstrate some computer skills in the 21st century. Identify at least four areas where computer is vital in the Engineering world.

Section B Attempt any three (Each question carries 20 marks)

Question 1:

- A) Define who petroleum engineers are and what petroleum engineers do
- B) Briefly describe 3 categories of petroleum engineers stating clearly how the role of one differ from those of the rest.

D) Since Oil is a non-renewable resource, how would you advise your government to use it sustainably?

Question 2:

Take one product from your engineering domain and explain about the following aspects

- a) its use in solving societal problems
- b) How users' centric design is made
- c) Impact on environment, safety and health

Question 3:

Define electrical engineering?

- b) Briefly explain at least 5 ways in which Electrical Engineers are Important to Society.

C) Define the following terms as used in construction

- i) Brick
- ii) Stone
- iii) Cement
- Iv) Mortar

Question 4:

Any engineer or engineering student that jokes with his or her safety is like joking with his or her entire life. In not more than five(5) points each, briefly explain how safety should be exercised in the following;

- (a) Fire safety
- (b) Construction and Site safety
- (c) Chemical Safety
- (d) Electrical safety

Question 5:

In most African countries there is a short fall of good engineers due to brain drain. As an engineering student at IUEA, in not more than 10 points briefly explain what your country should do in order to train, maintain and attract good Engineer

Question 6:

Other than aeronautic Engineering, mention Five (5) Engineering disciplines relevant to the development of your country that youngsters like you can pursue mentioning briefly the sort of

problems that engineers in the mentioned discipline solve. Please list only those that your country needs

b) Mention and describe 5 engineering challenges that engineers are facing around the world today. Use not more three lines for each.