



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
PETROLEUM ENGINEERING

EPL 409: PETROLEUM PLANT MANAGEMENT

1ST SEMESTER 2023/2024

TIME: 2 HOURS

INSTRUCTIONS: Answer question ONE and any other TWO questions

Question 1. (TOTAL 30 MARKS.)

- a) In the context of petroleum and gas- production systems, explain your understanding of product realization? (4 Marks)
- b) Mention the three aspects which will constitute customer-related processes in petroleum and gas product realization? (6Marks)
- c) Explain your understanding of design and development planning in the context of product development and explain how to manage the interfaces? (6 Marks)
- d) Mention the four major sources of design and development inputs related to product requirements determination? (4 Marks)
- e) In product development, give two reasons why it is important to conduct a design development review at all stages of a process? (4 Marks)
- f) In production and service provision ,mention the six control conditions (6 Marks)

Question 2. (TOTAL 20 MARKS)

- a) What is the role of *Analysis* as a common element in Management system concept? (2 Marks)
- b) Define *Strategy* as an element of Management System concept? (2 Marks)
- c) What should Top management of every organization do to make sure Management Strategies put in place are not "*empty words*" but become effective policies? (4 Marks)
- d) i) Which two major factors should form the basis of effective decision making by Top Management in an organization? (4 Marks)
ii) Mention three ways in which reliable information can be obtained in an organization, relevant for realizing a particular objective (3Marks)

INVOLVEMENT IN ANY EXAMINATION IRREGULARITY SHALL LEAD TO DISCONTINUATION

- iii) Give three reasons why its' important to establish processes for controlling recorded data (3 Marks)
- iv) Why is it important for an organization to establish methods to convey validated performed data to decision makers? (2 Marks)

Question 3. (TOTAL 20 MARKS.)

- i) Give two reasons why its important for an organization to establish channels of communication which are not restrictive with suppliers? (4Marks)
- ii) Why is it important for organizations to come up with policies that treat suppliers as partners and not adversaries ? (4Marks)
- iii) Define a system audit. (4 Marks)
- iv) Give 6 reasons why an organization would opt to perform 2rd party Audits other than 1st party Audits (8 Marks)

Question 4. (Total 20 MARKS.)

In the context of a Petrochemical industry

- a) Define what is Quality Defect. (2 Marks)
- b) Mention the 3 types of quality defects. (3 Marks)
- c) Mention the 5 causes of Defects (5 Marks)
- d) To minimize on Defects a TQM (Total Quality Management) stage can be adapted.
 - i) Define TQM (1 Marks)
 - ii) Mention the 3 stages of TQM and explain how they can help in reducing Quality Defects (3 Marks)
- e) At what stage of Quality Assessment will you be able to confirm the following:
 - i) Percentage of water in crude oil. (2 Mark)
 - ii) The green color of diesel fuel (2 Mark)
 - iii) Octane number for premium petrol is the usual91 (2 Mark)