



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATION FOR:2023/2024
FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE
DEGREE OF BACHELOR OF TECHNOLOGY IN ELECTRICAL AND
ELECTRONIC ENGINEERING

TEE4417: INDUSTRIAL ENGINEERING MANAGEMENT

PAPER 2

END OF SEMESTER EXAMINATION

SERIES: NOVEMBER 2024

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** Questions; Question ONE is compulsory. In addition, attempt any Other TWO Questions.

Do not write on the question paper.

Question ONE (Compulsory 20 marks)

- a) Briefly explain the factors that guide the plant location for manufacturing a consumer product.

5

Marks

- b) Explain briefly what is product design and how it influences the performance of a product in the market place. **4 Marks**
- c) Using a clearly labelled diagram, explain the “design thinking” process. **5 Marks**
- d) Briefly explain what is operation management and highlight the main areas of concern to achieve effective operation management . **6 Marks**

Question TWO (20 Marks)

- a) Compare the merits and demerits of VA against VE and select suitability in a specific product product manufacturing. **8 Marks**
- b) Prepare a maintenance schedule showing the procedure for a grain handling conveyor line during shutdown. **7 Marks**
- c) Using a labelled diagram, explain work study in management science and how it can be used to effect optimum use of resources. **5 Marks**

Question THREE (20 Marks)

- a) Briefly explain the factors that guide equipment selection in industrial engineering management. **7 Marks**
- b) Briefly explain the steps followed in effecting motion and time study. **6 Marks**
- c) Briefly explain how lean manufacturing works in a manufacturing environment. **3 marks**
- d) Compare and discuss Lean versus Six Sigma production. **4 Marks**

Question FOUR (20 Marks)

- a) Briefly explain Kanban change management and service delivery principles. **6 Marks**
- b) In Batch production, explain how the managers apply the features to make production efficient. **6 Marks**
- c) List and explain six main lean manufacturing tools used in management. **6 Marks**
- d) Explain what is a product in the context of a consumer. **2 Marks**

Question FIVE (20 Marks)

- a) Explain briefly how order cycles in inventory cushion companies from material price vagaries.

4

Marks

- b) Explain how the following functions are achieved for smooth production.

- i. Decoupling operations
- ii. Prevention against stock-outs
- iii. Order cycles.

6 Marks

- c) Briefly discuss group technology as a manufacturing philosophy and state its advantages.

8

Marks

d) Explain what is inventory control in a manufacturing context.

2 Marks