THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)
A Centre of Excellence

Faculty of Engineering & Technology

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Institutional Based Programme

UNIVERSITY EXAMINATION FOR BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING

EME 4409: INDUSTRIAL MANAGEMENT

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: MAY/JUNE 2012
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination
- *Answer booklet*
- *Non-programmable calculator*
- *Drawing Instruments*

This paper consists of **FIVE** questions in **TWO** sections **A** & **B**
Answer question **ONE (COMPULSORY)** plus any other **TWO** questions
This paper consists of **TWO** printed pages

SECTION A (compulsory)

Question 1 (30 Marks)

a) List and describe any **THREE** ideal factory site locational factor considerations (4 marks)

b) Explain why plant layout decisions affect:
   i) Flow of materials
   ii) Equipment utilization (8 marks)

c) Distinguish between process and fixed production layout types giving a typical example in each case (10 marks)

d) Explain any **THREE** goals of material handling that promote productivity (3 marks)

Question 2 (20 marks)

a) Explain any **THREE** advantages of MRP system (6 marks)

b) Explain the other cost that are not included in the inventory material cost (12 marks)

c) Define lead time in procurement (2 marks)

Question 3 (20 marks)

a) Define productivity in the manufacturing context indicating how it is calculated (5 marks)

b) Outline the steps involved in conducting a time study (5 marks)

c) Explain any **THREE** Therbligs used in motion study (6 marks)

d) Distinguish between method study and work measurement (4 marks)

Question 4 (20 marks)

a) Explain any **TWO** material handling principles (8 marks)

b) (i) Explain any **TWO** potential injuries and the resulting improper material handling
(ii) What **FOUR** precautions can be observed to avoid injuries when handling materials (12 marks)

Question 5 (20 marks)

a) Table 1 shows **THREE** random samples of four parts designed to be 50mm long that were collected at one hour intervals from a production line. Establish the control limits for these parts using a 99.74% confidence interval value of 0.729. Sketch the resulting mean chart. (16 marks)

Table 1

Sample	**Length (mm)**			
1	51	50	50	49
2	54	49	51	50
3	49	49	50	48

b) List any **FOUR** dimensions that describe quality of a product (4 marks)