MACHAKOS UNIVERSITY

University Examinations for 2017/2018 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF BUSINESS, ENTREPRENEURSHIP & MANAGEMENT SCIENCE

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN SUPPLY CHAIN MANAGEMENT

BPS 062: PRODUCTION AND OPERATIONS MANAGEMENTS

DATE: 6/12/2017 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS:

1. **DO NOT** write on this question paper.
2. This paper contains **FOUR (4)** questions.
3. Answer Question **ONE** which is **COMPULSORY** and any other **TWO** questions.
4. Write all your answers in the Examination answer booklet provided.

QUESTION ONE (COMPULSORY) (30 MARKS)

Read the case below and answer the questions that follow

Continuous improvement.

When Continental Automotive Systems, Tianjin, China, began producing an electronic component known as the silver box, the return rate was more than 1,200 parts per million (ppm), versus a goal of less than 100 ppm. A Six Sigma improvement team used quality tools including trend charts, Pareto charts, and cause-and-effect diagrams to analyze the failure modes for the reported defects, finding that many were not being covered by product testing processes. A combination of technical innovation tools, including test coverage analysis, fault insertion, and a test methods selection matrix, along with Six Sigma process improvement and statistical tools, led the team to the solution of adding new testing items and a new testing station to the process. Adding the new tests reduced silver box returns to fewer than 50 ppm, producing cost savings of $130,000 per year while also strengthening relations with a major customer

Any production environment needs quality orientation for its success.

a) Discuss the six sigma concept and how Continuous Automotive Systems used it to improve quality. (8 marks)

b) Process decisions are strategic decisions made directly or indirectly as building blocks of a firm. Briefly explain five key process decisions. (8 marks)

c) Discuss the Objectives of Production Management (6 marks)

d) Explain any ten factors that affect the facility location of a firm. (8 marks)

SECTON B: ANSWER ANY OTHER TWO QUESTIONS

QUESTION TWO (20 MARKS)

a) Describe the production system and explain each step. (10 marks)

b) Discuss aggregate planning and outline any five characteristics of an aggregate plan in detail. (10 marks)

QUESTION THREE (20 MARKS)

a) Capacity planning is concerned with defining the long-term and the short-term capacity needs of an organisation and determining how those needs will be satisfied. Discussthe importance of capacity decisions. (10 marks)

b) Outline and describe the key steps in the benchmarking process? (10 marks)

QUESTION FOUR (20 MARKS)

DAU Desks company, makes two types of office desks, Executive and Standing. Both desks require time in the Painting Department, but there are only 172 hours per month available currently in that department. The company can sell as many of each desk as it can make.

	Executive	Standing
Price	150.00	200.00
Variable Cost	70.00	110.00
Contribution Margin	80.00	90.00
Painting Department		
Time Required (Minutes)	15	20

a) Calculate the contribution margin for one hour for each product and determine which is higher (6 marks)

b) There are 172 hours per month available currently in that department to make Executive and Standing desk. The company can only sell 500 of each desk per month. What is the optimal product mix that would maximize profit each month? (9 marks)

c) Name four various types of stocks (5 marks)

QUESTION FIVE (20 MARKS)

a) Traditional ways of doing things in production are being replaced by current efficient ways. Explain the new trend in the production industries. (10 marks)

b) What are the main reasons for keeping inventories within an organization during the production process? (10 marks)