



STRATHMORE UNIVERSITY BUSINESS SCHOOL
BACHELOR OF SCIENCE IN SUPPLY CHAIN AND OPERATIONS MANAGEMENT
END OF SEMESTER EXAMINATION
SCM 2102: PRODUCTION AND OPERATIONS MANAGEMENT

DATE: Wednesday, 8th September 2021

Time: 2 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

a. A company that you have just started is involved in the production of phones. Your production model imitates the manufacturing design of Apple and Oppo. However, you have given the phones different names; Apple-K and Oppo-K. You have two orders for the month of October and November 2021. 100 Apple-Ks and 200 Oppo-Ks. Apple-Ks order is due for delivery at the fourth week of October and the Oppo-Ks order is due for delivery at the fourth week of November. You have some stock in store of 20 Apple-Ks and 10 Oppo-Ks. The orders have been evenly distributed; 25 for each week of October for the 100 Apple-Ks and 50 for each week of November for the 200 Oppo-Ks. There are some committed customer orders which must be fulfilled at 28, 15, 5, 4 and 2 for weeks 1,2,3,4 and 5 respectively. Each of the phones needs two plastic cases and four metallic holders. Metallic holders are fabricated at the firm and fabrication takes one week. The plastic cases are ordered and lead time is two weeks. Assembly of the phones requires one week. There are scheduled receipts of 50 plastic cases at the beginning of week one. **Required:**

- i. Execute a master production schedule for this firm. **(4 Marks)**
- ii. Explode the Bill of Materials for this Firm. **(4 Marks)**
- iii. Determine the size and timing of planned-order releases necessary to meet delivery requirements under A. Lot-for-lot ordering (planned order releases equal to net requirements). **(8 Marks)**
- b. Explain **TWO** pillars of world class manufacturing and how they can be used to upscale the standards of a company. Use a practical example. **(3 Marks)**
- c. Explain **TWO** components of the bottom up approach for the Six Big Losses Model.

(2 Marks)

d. Point out **FIVE** quality management gurus and their contribution to quality management and its underpinning to production and operations management. (5 Marks)

e. Outline using **FOUR** points the core of Production and Operations Management.

(4 Marks)

QUESTION TWO (15 MARKS)

a. Using a practical example of your own choice, explain computer integrated manufacturing and discuss **SIX** of its major components and how they assist in production and operations management.

(15 Marks)

QUESTION THREE (15 MARKS)

a. Differentiate between efficiency and effectiveness. (4 Marks)

b. Using **TWO** points explain how to attack the six big losses. (4 Marks)

c. Compute availability and quality using the information given below: (4 Marks)

Assume the production of 60 parts per minute

Item	Data
Shift length	480 Minutes
Breaks	15 Mins (2) & 30 Mins (1)
Theoretical Cycle Time	1.0 Seconds
Actual Output	19,271 Calcs
Defects	423 Calcs

d. Discuss **THREE** current trends within the field of production and operations management.

(3 Marks)

QUESTION FOUR (15 MARKS)

a. Dawa limited situated in Ruaraka industrial zone would like to commence on the manufacturing of a special COVID-19 vaccine for the East Africa Region. The vaccine will be in three categories with different pertinent ingredients. The three categories mirror the aged, youth and pregnant and breast feeding women. You have been called upon by the management of Dawa limited as an expert in production and operations management to offer

advice on the best process design. Advise the management of this company accordingly with a valid rationale. **(4 Marks)**

b. Nestle Ltd prides itself as the coffee experts in Kenya. However, Dorman Ltd has always been a leader in the coffee industry in terms of Sales. Discuss using **TWO** points how Dormans Ltd can fit its operations activities to strategies to be able to attain a competitive edge in the coffee industry in Kenya. **(2 Marks)**

c. Using Strathmore University as a case of reference discuss service package. **(6 Marks)**

d. Strathmore University is looking into opening a new campus in Congo. Strathmore is grappling on how best to layout its new campus in a new region. As a facility layout manager, advise Strathmore University on **THREE** layouts to use to optimize its operations. **(3 Marks)**

QUESTION FIVE (15 MARKS)

a. Strathmore University is looking into offering an undergraduate degree in medical sciences. To this end, the institution is grappling on how to translate the voice of the customer into the voice of the University designers for medical sciences. As an expert in Production and Operations Management dealing with quality function deployment, you have been called to help in this matter. Using this information, Build a house of quality for Strathmore University.

(7.5 Marks)

b. Your company is looking into employing a production planner for a new factory situated in Mlolongo. You have had several inter departmental meetings and the Human Resource Director has requested for your technical job design for the position. Draft a well outlined job design for this position. **(7.5 Marks)**