NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

BACHELOR OF ENGINEERING (HONS) DEGREE INDUSTRIAL AND MANUFACTURING ENGINEERING

Production Planning and Control

TIE 5102

First Semester Supplementary Examination Paper

August 2015

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements:

Examiner's Name: Eng. William M. Goriwondo

INSTRUCTIONS

1. Answer any five (5) Questions.
2. Each question carries 20 marks
3. Use of calculators is permissible

MARK ALLOCATION

QUESTION	MARKS
1.	20
2.	20
3.	20
4.	20
5.	20
6.	20
7.	20
TOTAL (Choose any 5 questions)	100

Question 1

a) Describe the concept of the Customer Order Decoupling Point (CODP) and how it affects capacity of an organisation. [8]

b) How does location of an organisation affect capacity? [3]

c) Explain using graphs how the following strategies are used in managing capacity.

i) Average Capacity Strategy, [3]

ii) Capacity Lead Strategy, [3]

iii) Capacity Lag Strategy. [3]

Question 2

a) Success of any business rests on the satisfactory performance of Marketing, Finance and Operations. Discuss the role of each of these functions and how they relate to each other in an organisation. [12]

b) Describe how an organisation would achieve competitiveness by utilising the specific functions of Operations Management. [8]

Question 3

a) Define a Supply Chain. [2]

b) Removing Cost from the Supply Chain is one of the tasks that managers should do in order to employ the Supply Chain Management thinking. Explain how this can be done in a heavy engineering firm of your choice. [10]

c) Discuss how the ISO 9001: 2008 Quality Management system can be used in improving Supply Chain Management. [8]

Question 4

a) Describe the difference between dependent and independent demand? [2]

b) A component T consists of two parts U, three parts V, and one part Y. Part U in turn is made of one part W and two parts of X. Part V is made of two parts of W and two parts of Y. The lead times needed to either produce or obtain these products from outside vendors, On hand inventory and Scheduled receipts is shown in the Table Qu.4 .

Table Qu. 4 : Lead Times, On hand inventory and scheduled receipts

Part	Lead Time (Weeks)	On Hand Inventory	Scheduled Receipts
T	1	25	-
U	2	5	5
V	2	15	-
W	3	30	-
X	2	20	-
Y	1	10	-

Prepare a Material Requirements Plan (MRP) for completing 100 units of Product T in period 8. [18]

Question 5

a) What is Rough-cut capacity planning and why is it necessary? [4]

b) Explain the four main phases of aggregate production planning and outline what transpires in each of those phases. [16]

Question 6

a) Discuss the significance of the age of Analysis in the History of Operations Management. [10]

b) Why are organisations in Zimbabwe facing challenges in implementing Operations Management principles that were developed a long time ago eg. Total Quality Management (TQM) among others. [10]

Question 7

a) Describe factors that lead to the establishment of the Effective Capacity and the Rated Capacity. [8]

b) Discuss the important steps found in Strategic Capacity Planning for a medium sized manufacturing organisation. [12]