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 Main Examination Paper

December 2014

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) Select two service and two manufacturing businesses of your own choice and discuss their similarities and differences. [10]
b) In what ways can Operations Management assist in reducing adverse environmental effects associated with productive systems? [4]
c) Define each of the three (3) classifications of Production with examples. (ie) Primary, Secondary and Tertiary. [6]

Question 2

a) Production Planning and Control utilizes the three main principles of Investigation, Co-ordination and Evaluation. Discuss how these principles are applied in a manufacturing organisation. [8]
b) Describe the role of a Management Process and a Production Process in an Operations System. [12]

Question 3

a) Discuss the roles of the basic functional areas within an organisation and their relationship to top management. [10]
b) What are the specific functions of the Operations Management role in an organisation? [10]

Question 4

The Master Production Schedule for a toy is shown in Table Qu. 4.

Table Qu. 4 : Master Production Schedule for a Toy.

Week	1	2	3	4	5	6	7	8
Demand		40		70	20	50		60

The toy is assembled from parts and components as shown in the Bill Of Materials (BOM) in Fig. Qu. 4 b

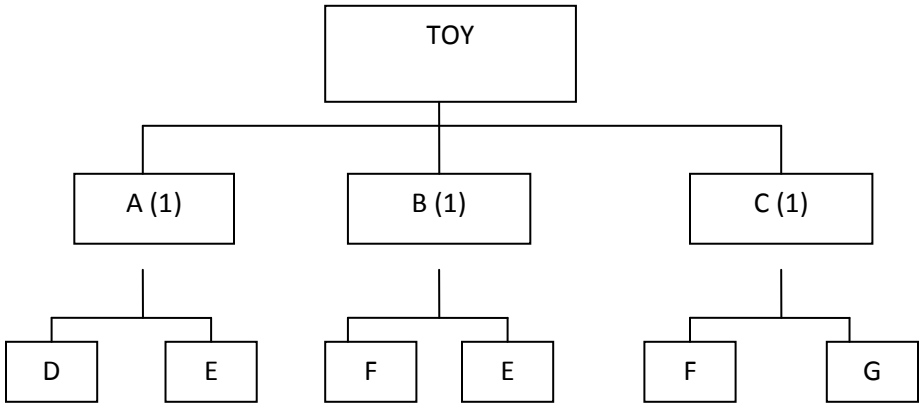

Fig. Qu. 4: Bill of Materials for a Toy

Starting Inventory on hand is 80 for A, 65 for B and 90 for C.
These components are produced in lot sizes of 200, 150 and 120 respectively. All components have a lead time of 1 week except B, E and G which have a lead time of 2 weeks.

Determine the material requirements planning schedules for the components A and C. [20]

Question 5

(a) Explain the 3 main elements of Operations Management that are the backbone of Growth? [5]
(b) What is Just In Time (JIT) and how does it help minimise waste. [10]
(c) Describe how an Enterprise Resources Planning (ERP)system enhances Supply Chain Management. [5]

Question 6

(a) Discuss the major steps in conducting a Strategic Capacity Plan . [15]
(b) How would you ensure that the organisation is getting value out of the Aggregate Planning process? [5]

Question 7

(a) What role does the Master Production Schedule (MPS) play in an organisation? [1]
(b) Explain the three main types of Production Plans? [3]
(c) Define Aggregate Production Planning and discuss its main phases ? [16]

End of Examination