



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIFTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

EMM 503: PRODUCTION PLANNING AND CONTROL

DATE: 17/8/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question ONE and any other two questions.

QUESTION ONE (30 MARKS)

- a) Discuss the meaning of Production planning and control (PPC). (8 marks)
- b) An electronic clock supplier found a received request of 200 units in July, 225 units in August & 245 units in September. Determine the demand forecast for the month of October using simple average method. (5 marks)
- c) Using a clear illustration, discuss the steps in PPC. (17 marks)

QUESTION TWO (20 MARKS)

Using a clear illustration, explain the types of information that MRP systems use.

QUESTION THREE (20 MARKS)

The selection of production process mainly depends on a variety of factors that also influence the choice of the production system. Using clear sketches, discuss the above statement, outlining the characteristics, merits and demerits of each system.

QUESTION FOUR (20 MARKS)

The following information is given for an item scheduled for production in a company:

Ordering cost (OC) = Ksh 50 per order

Carrying cost (CC) per unit per week = 0.5% of unit cost price

Unit cost price = Ksh 20

Week	Net requirement
1	80
2	100
3	90
4	60
5	110
6	50
Total	490

- a) Determine the Carrying cost per week (2 marks)
- b) On the basis of the Least Total Cost and Least Unit cost methods, fill the attached table 1, hence determine the order size and cost for each of the methods (NB: Unit cost only applies in the case of Least Unit cost approach). Comment on the results. (18 marks)

Weeks	Lot size	Carrying Cost	Order cost	Total Cost	Unit Cost	
1						
1 to 2						
1 to 3						
1 to 4						
1 to 5						
5						
5 to 6						
Week	Net Requirement	Lot Size	Ending Inventory	Carrying cost	Order Cost	Total cost
1						
2						
3						
4						
5						
6						
Grand total						

QUESTION FIVE (20 MARKS)

What would you define as the inputs and outputs of an MRP system?