



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BUSINESS & ECONOMICS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF LOGISTICS
AND SUPPLY CHAIN MANAGEMENT**

1ST YEAR 1ST SEMESTER 2023/2024 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: MLS 5113

COURSE TITLE: OPERATIONS MANAGEMENT: INVENTORY

EXAM VENUE:

STREAM: (MLSCM)

DATE: 29/04/2024

EXAM SESSION: 9.00 – 12.00 NOON

TIME: 3 HOURS

INSTRUCTIONS:

Answer ANY FOUR questions

Candidates are advised not to write on the question paper.

Candidates must hand in their answer booklets to the invigilator while in the examination room.

QUESTION ONE

The following information relate to Master company Limited sales for the year 2016 for a product for the last six months. From the data provided forecast the expected inventory for following month.

Month	April	May	June	July	August	September	October
Sales	73	75	77	72	81	82	

- a. obtain the forecast for the month of October using exponential smoothing
 $e = 0.2$ (4 marks)
- b. Discuss any FOUR advantages of using exponential smoothing as a forecasting technique. (4 marks)
- c. Discuss any Three qualitative approaches that can be used in demand forecasting. (7 marks)

QUESTION TWO

Discuss the following terms as used in inventory control

- a. Periodic Review system. (5 marks)
- b. Re-order level system. (5 marks)
- c. Hybrid system. (5 marks)

QUESTION THREE

Save Mart Ltd needs 1000 coffee makers per year. The cost of each coffee maker is ksh. 78, the ordering cost is Ksh. 100 per order, the carrying cost is Ksh. 20 per unit and lead time is 5 days. The Mart is open for 360 days per year.

- a. Find the EOQ model. (4 marks)
- b. How many times per year does the store reorder. (3 marks)
- c. What is the length of the order cycle. (3 marks)
- d. What is the annual total cost if the EOQ quantity is ordered. (5 marks)

QUESTION FOUR

- a. Discuss any FIVE reason the necessitate an organization to undertake demand forecasting. (5 marks)
- b. Describe any THREE time horizons that can be used in forecasting demand. (6 marks)

- c. Discuss any FOUR benefits an organization will get from undertaking good demand forecasting. (4 marks)

QUESTION FIVE

- a. Discuss any FIVE salient characteristics of the Just In Time (JIT) inventory control technique. (5 marks)
- b. Discuss any FIVE benefits an organization will get by embracing the Just In Time (JIT) inventory control technique. (5 marks)
- c. As a stock controller at Daima Ltd, describe how you will use the Pareto principle of ABC analysis to control inventory in the warehouse. (5 marks)

QUESTION SIX

The annual demand for a product is 3600 units with an average of 12 units per day. The lead time is 10 days. The ordering cost per unit is Ksh. 10 and the annual carting cost is 25% of the value of inventory. The price per unit is Ksh. 3.

Find;

- a. The Economic Order Quantity. (4 marks)
- b. The Purchase Cycle time. (2 marks)
- c. The Total inventory cost per year. (4 marks)
- d. If a safety stock of 100 units is considered, what will be the Re order level and the Total annual cost of inventory which will be relevant to the inventory decision. (5 marks)