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TEVETA
Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN PRODUCTION AND OPERATIONS MANAGEMENT

LEVEL 6 YEAR III EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATION

SITTING: JULY/AUGUST 2026

SUBJECT: OPERATIONS MANAGEMENT II

TIME: THREE (3) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO THE CANDIDATE:

1. Write your Examination number and National Registration Card number on the answer booklet provided. Ensure to append your signature in the space provided on the answer booklet.
2. Write your answer SCRIPTS SERIAL NUMBER on the examination register provided and on the entry slip.
3. There are Seven (7) questions in this paper.
4. Question one (1) is COMPULSORY.
5. Attempt any Four (4) questions of your choice from the remaining five (5) questions.
6. All questions carry equal marks.
7. Cell phones and Programmable calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

QUESTION 1 (COMPULSORY)

a) Outline **four (4)** characteristics of Forecasts. (4 marks)

b) The following table gives the sales from a grocery store in each quarter for the last four years. (The figures are given in thousands of kwacha).

		Quarters			
		1	2	3	4
Year	1	20	20	60	24
	2	23	26	63	26
	3	24	27	63	27
	4	25	29	67	30

Using the moving averages, assuming an additive model,

i. Predict the trend figure. (10 marks)

ii. Calculate seasonal variations. (4 marks)

iii. Forecast for year **five (5)** quarters. (2 marks)

Total (20 marks)

QUESTION 2

A company that manufacturers furniture relies heavily on imported components. The supplier of the main components has been a challenge as delivery times are always fluctuating. The company is further challenged with the highly irregular customer orders, with demand spiking some weeks and dropping sharply in others

a) Outline **three (3)** managerial actions to manage.

i. Lead-time variability. (2 marks)

ii. Erratic order (2 marks)

b) Explain the application of MRP in managing the following organisation challenges.

i. Lead-time variability. (5 marks)

ii. Erratic order. (5 marks)

c) Explain the impact of supplier reliability on overall production efficiency. (6 marks)

Total (20 marks)

QUESTION 3

a) Distinguish between the following concepts used in production

i. Design Capacity and System Capacity. . (4 marks)

ii. Rough-Cut Capacity Plan (RCCP) and Capacity Requirement Plan (CRP). (4 marks)

iii. Manufacturing and Service Operations. (4 marks)

b) Explain **four (4)** criteria for selecting Aggregate Plans. (8 marks)

Total (20 marks)

QUESTION 4

Assuming that you work for a furniture company in a section producing tables. Demand forecasts for the table for the next 6 months are as follows:

Month	Forecast Demand (units)
1	200
2	300
3	400
4	500
5	400
6	300

- Each worker can produce 100 tables per month.
- Current workforce = 2 workers.
- Hiring cost = K500 per worker.
- Firing cost = K300 per worker.
- Regular labour cost = K1,000 per worker per month.
- No overtime or inventory allowed (pure chase strategy with hiring/firing).

Tasks:

a) Formulate the aggregate plan using hiring and firing. (6 marks)
b) Tabulate the monthly workforce plan. (6 marks)
c) Compute the total cost. (4 marks)
d) Interpret the results in terms of production scope and workforce stability. (4 marks)

Total (20 marks)

QUESTION 5

SMS Retail Outlet has been struggling with missed purchase order days, leading to frequent stockouts, lost sales, and strained supplier relationships. As a seasoned operations management specialist, you assess her situation and establish that she does not use forecasting techniques and strategies to predict the order date. You recommend the use of Material Requirements Planning (MRP), to establish precise order dates based on forecasted demand, lead times, and inventory levels.

Assuming she provides you with the following data regarding one category of products: lead time 2 weeks, inventory 260 units, lot batch size 100 units, forecasted customer demand in week 1, 3, 5, 7 and 8 are 150, 70, 175, 90 and 60 respectively.

a) Explain **three (3)** reason that using forecasting techniques in operations management is importance. (6 marks)

b) Using the information above, predict the order dates for SMS Retail Outlet. (14 marks)

Total (20 marks)

QUESTION 6

a) State **six (6)** key steps in decision making. (6 marks)

b) A bank has a single teller serving customers Average service rate = 15 customers per hour. 12 customers arrive per hour. Assuming arrivals follow a Poisson, distribution and service times are exponentially distributed;

i. Calculate the utilization factor. (4 marks)

ii. Predict the average number of customers in the system. (3 marks)

iii. Compute the average time a customer spends in the system. (2 marks)

iv. Calculate the average number of customers waiting in line. (2 marks)

v. Calculate the average waiting time in line. (2 marks)

Total (20 marks)

QUESTION 7

A company produces **three (3)** product lines under different strategies as follows:

- Bottled juice (Make-to-Stock)
  - Forecast demand for June = 10,000 bottles
  - Current inventory = 2,000 bottles
  - Production capacity = 9,000 bottles per month
  - Holding cost = K0.20 per bottle per month

- Computers (Assemble-to-Order)
  - Stocks: 500 CPUs, 400 motherboards, 600 RAM kits
  - Each computer requires 1 CPU, 1 motherboard, 2 RAM kit
  - Assembly time = 0.5 hours per unit
  - Labour available = 200 hours/month

- Custom chairs (Make-to-Order)
  - Each chair requires 5 hours of labour
  - Labour available = 300 hours per month
  - Demand in July = 75 chairs
  - Cost per labour hour = K15

Tasks:

a) Calculate the number of computers that can be assembled in a month. (2 marks)

b) Describe the computer component that is a limiting factor for the production in (a) above. (2 marks)

c) Explain whether an order of 350 units can be met. (2 marks)

d) Calculate the holding cost for bottles in a month. (2 marks)

e) Explain whether the company can meet July's demand for chairs. (2 marks)

f) Compute the maximum number of chairs producible in a month. (2 marks)

g) Calculate the labour cost for chairs if demand is met. (2 marks)

h) Justify the use of more than one production strategy is viable. (6 marks)

(6 marks)

Total (20 marks)