

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
DEPARTMENT OF BUSINESS MANAGEMENT
MSC IN MARKETING
SUPPLY CHAIN MANAGEMENT - CBU 5202
FINAL EXAMINATION DECEMBER 2006
TIME ALLOWED: 3 HOURS 30 MINUTES**

Instructions to candidates

- Answer section A and any TWO from Section B and any TWO from Section C
 - Each question carries 20 marks
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Section A

Question 1

Case

Read the Case Study on HCA attached and answer the following questions

- (a) Outline HCA's challenges in managing its hospitals. [5]
- (b) Explain how supply chain collaboration is used by HCA and how it was achieved. [5]
- (c) Explain how automation was used to re-engineer HCA's supply chain and what were the benefits. [5]
- (d) Explain FIVE levels of benefits achieved by HCA and how they could apply to Zimbabwean hospital. [5]

Section B

Question 2

- a) Supply chain management leaders use "operational excellence", "product leadership" and "customer intimacy". Using examples worldwide explain the three supply chain strategies. [9]
- b) Distinguish between "responsive" and "efficient" supply chain and outline the supply chain strategies you would recommend for each in the Zimbabwean environment. [8]
- c) In supply chain management context distinguish between a "sphere" and a "value stream". [3]

Question 3

Discuss the methodology of the following supply chain management tools and their importance

- a) Quality function deployment [5]
- b) Cause and effect diagrams [5]
- c) Value Requirements Mapping [5]
- d) Activity based costing [5]

Question 4

- a) Using Zimbabwe as a case study, discuss the impact of the PEST factors on supply chain performance. [12]
- b) Discuss the defensive and offensive supply chain strategies a firm in Zimbabwe can use citing specific examples. [8]

Question 5

- a) Outline five tasks of management in supply chain improvement. [5]
- b) Below in Figure Q1 is a framework for enterprise work design and methods improvement approach. Critically discuss the applicability of the components in improving supply chain performance using examples from an organization you are familiar with. [9]

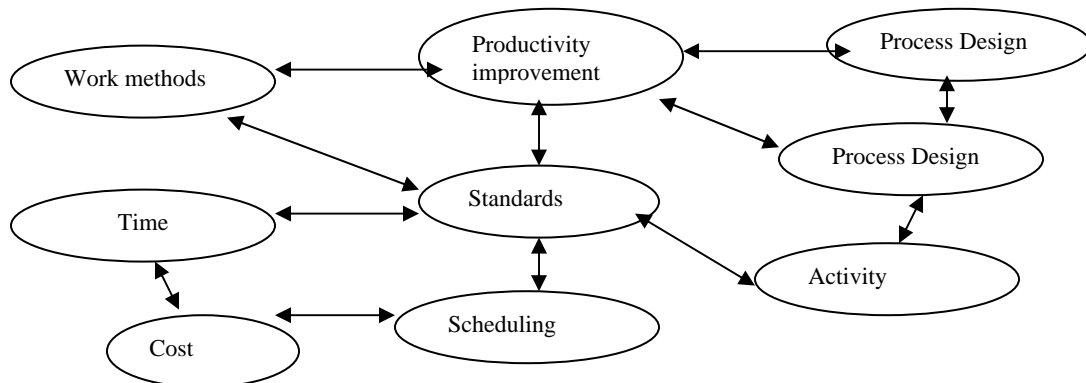


Fig Q1: Enterprise Work Design And Methods Improvement Framework

- b) Carry out a Supply Chain departmental purpose analysis in a manufacturing firm of marketing, production management and plant operations. [6]

Section C

Question 6

- a) Outline the principles of JIT and explain how they differ with operational management practices in Zimbabwe. [5]
- b) PJ Manufacturing makes furniture. On 24 July 2006 their order book is as below in Table Q4

Table Q4 Job characteristics for PJ Manufacturers

Job	A	B	C	D	E	F	G
Processing Time/ days	2	5	7	3	11	8	6
Arrival date	2 July	15 July	30 June	1 July	20 July	14 June	7 July
Set up Time	12	15	30	13	14	50	34
Due date	26 July	30July	3Aug	15sept	9Aug	1 Aug	7Aug

- Prepare a job schedule for PJ using (i) Shortest set up time [2]
(ii) Earliest due date [2]
- In each case calculate the total flow time, total jobs in the system and number of days late. [6]

- c) Explain the run out method of scheduling and when it can be used best. [2]
- d) Discuss ways a firm can use to reduce the scheduling problem. [3]

Question 7

- a) Discuss the costs of inventory and hence or otherwise derive the economic order quantity.
- b) Shooting stars (Pvt) Ltd is a retailer of windows. Holding cost per unit is \$0.50 per unit per month. Ordering costs are \$ 4800 per order. Their customer demand for a ten month period is as follows in Table 2

Table 2: Customer Demand for a Ten-Month Period

MONTH	J	F	M	A	M	J	J	A	S	O
Gross requirements	680	610	700	440	300	0	560	760	360	220

- i) Develop a lot sizing plan using lot for lot and calculate the total cost of the plan. [4]
- ii) Develop a lot-sizing plan using periodic order quantity and evaluate the total cost. [7]

Question 8

- a) Explain the term material requirements planning and outline its importance in supply chain management. [5]
- b) ZimC manufactures safety suit at its plant in Bulawayo. A South African customer orders 2700 safety wear units of which 900 are to be delivered at the end of week 6 and 1800 at the end of week 10. Inventory data and components are given in *Table 7* below.

Table 7 Bill of materials, Inventory data Source for ZimC

Description	Quantity in product	Level	Source	Lead time	Minimum lot size	Safety stock	Allocated inventory	Inventory on hand	Scheduled receipts
Safety suit		0	Assembled	1		0	0	0	
Frame	1	1	welded	1		0	0	5	
shield	2	2	Assembled	2		0	30	60	
buttons	4	3	purchased	2	50000	15000	1500	1250	50000 (week 1)

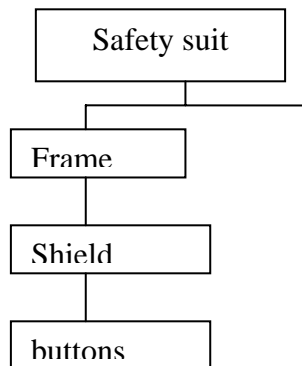


Fig 1 Product structure for safety suit

Develop a material requirements plan for the safety suit, frame, shield and buttons.

[15]