School of Business

BBA

ETE - Jun 2023

Time : 3 Hours **Marks : 100**

Sem IV - D1UA414T - Inventory Management and Control

Your answer should be specific to the question asked

Draw neat labeled diagrams wherever necessary

1.	Discuss the importance of effective inventory management in achieving a balance between inventory costs and customer service. Identify and explain three techniques or strategies that can be employed to improve inventory management efficiency and effectiveness.	K2 CO2	(5)
2.	Discuss two hybrid systems - optional replenishment system and base stock system. Compare and contrast these two systems in terms of their advantages, implementation considerations, and suitability for different types of inventory management scenarios.	K2 CO3	(5)
3.	How does Little's Law contribute to understanding and improving inventory management practices? Explain the formula and its implications in a business context.	K2 CO1	(5)
4)	Explain the costs associated with inventory and their impact on a company's financial performance. Discuss carrying costs, ordering costs, stockout costs, and holding costs. Provide examples to demonstrate the calculation and significance of each cost component.	K4 CO3	(10)

OR

	Discuss the importance of inventory management in achieving cost reduction and efficient operations. Explain three cost-saving strategies that organizations can implement to optimize their inventory management practices. Discuss how these strategies contribute to reducing carrying costs, minimizing stockouts, and improving overall supply chain performance.	K4 CO3	(10)
5.	Explain the role of information technology (IT) in effective inventory management. Discuss three ways in which IT systems and software can support inventory planning, control, and optimization.	K2 CO4	(10)
6.	Williams Corporation is implementing a cycle counting program to enhance inventory accuracy. The company has a total of 10,000 items in its inventory. The inventory consists of three categories: A, B, and C. The distribution of items is as follows: 2,500 A items, 3,000 B items, and 4,500 C items. a) Define cycle counting and explain its importance in maintaining accurate inventory records. b) Williams Corporation has decided to implement a cyclic counting plan for its inventory. The company policy states that all A items should be counted every month (every 20 working days), all B items every two months (every 40 working days), and all C items every quarter (every 60 working days). Calculate the average number of A items, B items, and C items that should be counted per working day. c) Identify and discuss three potential benefits that Williams Corporation can expect to achieve by implementing a cycle counting program.	K4 CO1	(10)
7.	Radovilsky Manufacturing Company, in Hayward, California, makes flashing lights for toys. The company operates its production facility 300 days per year. It has orders for about 12,000 flashing lights per year and has the capability of producing 100 per day. Setting up the light production costs $50. The cost of each light is $1. The holding cost is $0.10 per light per year. a) What is the optimal size of the production run? b) What is the average holding cost per year? c) What is the average setup cost per year? d) What is the total cost per year, including the cost of the lights?	K3 CO5	(10)
8.	M. Cotteleer Electronics supplies microcomputer circuitry to a company that incorporates microprocessors into refrigerators and other home appliances. One of the components has an annual demand of 250 units, and this is constant throughout the year. Carrying cost is estimated to be $1 per unit per year, and the ordering (setup) cost is $20 per order. a) To minimize cost, how many units should be ordered each time an order is placed? b) How many orders per year are needed with the optimal policy? c) What is the average inventory if costs are minimized?	K4 CO3	(15)

PTO

9. Consider the following: K5 CO5 (15)

- April 01: Inventories on hand are 50 units at $2 and 100 units at $4.50
- April 05: Purchased 100 units at $1.80
- April 06: 10 units of inventories purchased on 5 April at $1.80 are returned to the supplier
- April 10: 80 units issued to factory
- April 15: 50 units issued to factory
- April 20: 20 units purchased at $1.50
- April 25: 70 units issued to factory
- April 30: 50 units purchased at $1.70
- April 30: 10 units returned to store out of units issued to the factory on 25 April

Calculate the cost of goods and value of the stock on hand using the FIFO method.

10) Tobacco is shipped from North Carolina to a cigarette manufacturer in Cambodia once a year. The reorder point, without safety stock, is 200 kilos. The carrying cost is $15 per kilo per year, and the cost of a stockout is $70 per kilo per year. Given the following demand probabilities during the lead time, how much safety stock should be carried? K5 CO4 (15)

Demand	Probability
0	0.1
100	0.1
200	0.2
300	0.2
400	0.2

OR

Mr. Beautiful, an organization that sells weight training sets, has an ordering cost of $40 for the BB-1 set. (BB-1 stands for Body Beautiful Number 1.) The carrying cost for BB-1 is $5 per set per year. To meet demand, Mr. Beautiful orders large quantities of BB-1 seven times a year. The stockout cost for BB-1 is estimated to be $50 per set. Over the past several years, Mr. Beautiful has observed the following demand during the lead time for BB-1: K5 CO4 (15)

DEMAND DURING LEAD TIME	PROBABILITY
40	.1
50	.2
60	.2
70	.2
80	.2
90	.1
	1.0

The reorder point for BB-1 is 60 sets. What level of safety stock should be maintained for BB-1?