

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination December 2024

Course: Introduction to SCM
Program: MBA(LSCM)
Time: 03 hrs.

Semester: I
Course Code: LSCM7029
Max. Marks: 100

Instructions: All sections are compulsory & this question paper carries 4 sections.

Section – A (20 Marks)
Attempt all questions in this section.

Marks

COs

	<u>Section – A (20 Marks)</u> Attempt all questions in this section.	Marks	COs
‘Q-1	Very short answers-	2*10=20	
	1). A global manufacturing company discovers that 70% of its critical components come from suppliers in a single geographic region. Which of the following should be their FIRST priority in risk mitigation? a) Immediately terminate contracts with existing suppliers b) Develop parallel supply sources in different geographic regions c) Increase safety stock levels of all critical components d) Switch to local suppliers only	2	CO1
	2). In analysing a company's distribution network, the data shows high facility costs but low transportation costs. Which network configuration would likely provide the MOST efficient solution? a) Many small distribution centers b) Few large centralized facilities c) Only direct-to-consumer shipping d) Multiple medium-sized regional centers	2	CO1
	3). Although faster transportation is more expensive, a firm receives which benefit as a result of the faster transportation? a). Fewer rejects b). Higher profit c). Lower inventories d). More warehouses	2	CO1
	4). _____ is an example of pull supply Chain	2	CO1
5). CPFR stands for_____.	2	CO1	

6). POS stands for_____.	2	CO1
7) Which metric would be MOST effective in measuring the environmental impact of a company's supply chain operations? a) Total logistics costs b) End-to-end carbon footprint c) Number of suppliers d) Inventory turnover ratio	2	CO1
8). A company experiences frequent supply disruptions due to quality issues. Which approach would be MOST effective in addressing this problem? a) Increase safety stock levels b) Implement supplier development program with quality monitoring c) Switch to air freight d) Increase number of suppliers	2	CO1
9). Which transportation mode typically has the highest cost per unit mile? a) Rail b) Air c) Water d) Pipeline	2	CO1
10) _____ is the ratio of average cost of goods sold to average inventory investment.	2	CO1

Section – B (20 Marks)

**Attempt any four questions in this section, each carries 5 marks (5*4=20 marks)
Write a short note on any four**

Q.2	What is the difference between 3PL and 4PL??	5	CO2
Q.3	Describe the Bullwhip Effect and strategies to minimize it	5	CO2
Q.4	Why is logistics called a system concept? Explain it with suitable example?	5	CO2
Q.5	What is postponement? What are the costs and benefits of postponement?	5	CO2
Q.6	What are the different assumptions taken for EOQ model?	5	CO2

Section – C (30 Marks)

Each question carries 10 marks (10X3=30 marks)

Q-7	<p>The following observations were recorded about a group of items in a small-scale manufacturing unit. Classify the material in A, B, C categories.</p> <table border="1" data-bbox="203 300 1252 779"> <thead> <tr> <th>Item</th> <th>Unit Cost(Rs)</th> <th>Annual Usage(Qty)</th> </tr> </thead> <tbody> <tr><td>1</td><td>40</td><td>90</td></tr> <tr><td>2</td><td>300</td><td>40</td></tr> <tr><td>3</td><td>60</td><td>130</td></tr> <tr><td>4</td><td>40</td><td>60</td></tr> <tr><td>5</td><td>30</td><td>120</td></tr> <tr><td>6</td><td>50</td><td>80</td></tr> <tr><td>7</td><td>10</td><td>170</td></tr> <tr><td>8</td><td>120</td><td>50</td></tr> <tr><td>9</td><td>510</td><td>70</td></tr> <tr><td>10</td><td>20</td><td>120</td></tr> </tbody> </table>	Item	Unit Cost(Rs)	Annual Usage(Qty)	1	40	90	2	300	40	3	60	130	4	40	60	5	30	120	6	50	80	7	10	170	8	120	50	9	510	70	10	20	120	10	CO3
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Q.8	<p>Explain in detail the importance of inventory in supply chain. Why are the reasons of carrying inventory and why do we need to have a tight control on the inventory? Explain in brief the four inventory control techniques which are used.</p>	10	CO3																																	
Q.9	<p>What is the significance of last mile delivery (LMD). Develop a comprehensive strategy for optimizing last-mile operations, including sustainability considerations and performance metrics.</p>	10	CO3																																	
<p>Section D This section has two questions each carries 15 marks</p>																																				
Q.10	<p>a) What is the difference between qualitative and quantitative forecasting methods? b). Calculate the forecast and fill in the blanks using the 3-year simple moving average method. Assume that for the year 1 forecast (300)</p> <table border="1" data-bbox="386 1367 1092 1776" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Demand (At)</th> <th>Forecast (Ft)</th> </tr> </thead> <tbody> <tr><td>1</td><td>310</td><td>300</td></tr> <tr><td>2</td><td>365</td><td>_____</td></tr> <tr><td>3</td><td>395</td><td>_____</td></tr> <tr><td>4</td><td>415</td><td>_____?</td></tr> <tr><td>5</td><td>450</td><td>_____?</td></tr> <tr><td>6</td><td>465</td><td>_____?</td></tr> <tr><td>7</td><td></td><td>_____?</td></tr> </tbody> </table>	Year	Demand (At)	Forecast (Ft)	1	310	300	2	365	_____	3	395	_____	4	415	_____?	5	450	_____?	6	465	_____?	7		_____?	15	CO4									
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	c) Explain the significance of forecast accuracy on demand planning? What is the difference between MSE and MAPE in forecast error detection?		
Q-11	<p>"In the context of recent global disruptions (including the COVID-19 pandemic, Suez Canal blockage, and geopolitical tensions), Supply Chain Resilience has become a critical strategic priority. As a Supply Chain Manager at a global manufacturing company:</p> <ul style="list-style-type: none"> a) Define Supply Chain Resilience and explain its key dimensions. (5 marks) b) Analyze the primary vulnerabilities that can impact supply chain resilience, with relevant examples. (5 marks) c) Discuss the fundamental building blocks required to create a resilient supply chain network. (5 marks) 	15	CO4