

Name:



Enrolment No:

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2023**

**Course: Supply Chain Modeling, Design and Simulation**  
**Program: MBA (Logistics and Supply Chain Management)**  
**Course code: LSCM8026**

**Semester: III**  
**Time: 03 hrs.**  
**Max. Marks: 100**

**Instructions:** Allow a simple calculator in the exam.

**SECTION A**  
**10Qx2M=20Marks**

1. Instruction: Select the correct answer(s)/answer.

S. No.	Question	Marks	CO
Q1.1	The chief decision areas in supply chain management are: a) location, production, distribution, marketing b) location, production, scheduling, inventory c) planning, production, distribution, inventory d) location, production, distribution, inventory	2	CO1
Q1.2	In supply chain management, what does the term "bullwhip effect" refer to? a) Efficient demand forecasting b) Smooth supply chain operations c) Amplification of demand fluctuations d) Low inventory costs	2	CO1
Q1.3	In supply chain decision-making, what is the "lead time"? a) Time required for customers to place an order b) Time required for a product to be manufactured c) Time required to procure raw materials d) Time between placing an order and receiving the product	2	CO1
Q1.4	Which of the below is not a principle of forecasting. a) Forecasts are always reliable. b) The forecast is always wrong. c) The longer the forecast horizon, the worse the forecast. d) Aggregate forecasts are more accurate.	2	CO1
Q1.5	What is the primary purpose of a Decision Support System (DSS) in supply chain management? a) Automating routine tasks b) Providing historical data c) Assisting in complex decision-making d) Managing procurement transactions	2	CO1
Q1.6	_____ optimisation model has three major components: decision variables, objective functions, and constraints. a) Global b) Open c) Constrained d) Local	2	CO1

Q1.7	In procurement, what does the term "Total Cost of Ownership" (TCO) encompass? a) Only the purchase price of the product b) All costs associated with acquiring, owning, and maintaining a product c) Costs related to supplier selection d) Transportation costs only	2	CO1
Q1.8	In supply chain simulation, what does "what-if analysis" involve? a) Simulating scenarios and assessing the impacts of different variables b) Analysing historical supply chain data c) Ignoring potential disruptions d) Exclusively focusing on cost reduction	2	CO1
Q1.9	In the context of supply chain integration, what does "Vendor-Managed Inventory" (VMI) refer to? a) A process where suppliers manage the buyers' inventory b) A method to increase transportation costs c) A system for outsourcing production d) A strategy to minimise supplier collaboration	2	CO1
Q1.10	In supply chain simulation, what is the primary purpose of using "sensitivity analysis"? a) Identifying optimal solutions b) Automating supply chain processes c) Evaluating the impact of parameter variations on model outcomes d) Minimizing the importance of supply chain disruptions	2	CO1
<b>SECTION B (4X5=20 MARKS)</b>			
Question 2. Consider the supply chain for a domestic automobile brand. Answer the below questions in max. Up to 200 words (each).			
Q2.1	What are the components of the supply chain for the automobile?	5	CO3
Q2.2	What are the different firms involved in the supply chain? What are the objectives of these firms?	5	CO3
Q2.3	Provide examples of conflicting objectives in this supply chain.	5	CO3
Q2.4	What are the risks that unexpected events pose to this supply chain?	5	CO4
<b>SECTION C (10X3= 30 MARKS)</b>			
Question 3: Answer the below questions in max. Up to 400 words (each).			
Q3.1	For a Company, the decision that a single central warehouse will be built has been made up-front. Now, you are tasked to figure out the location and capacity of the warehouse and determine how much space should be allocated to each product in the warehouse. List the main steps of your analysis.	10	CO2
Q3.2	List two techniques, each for quantitative and qualitative forecasting. Also, explain the criteria for choosing each one of them as appropriate.	10	CO2

Q3.3	List and explain two types of inventory policies for the multi-period (multiple order opportunity).	10	CO2
<b>SECTION D</b> <b>(15X2= 30 MARKS)</b>			
Question 4: Answer the below questions in max. up to 700 words (each).			
Q4.1	In supply chain integration, what is a push strategy? A pull strategy? A push-pull strategy? How would you characterise Dell's supply chain strategy?	15	CO3
Q4.2	What is the impact of the Internet on the supply chain strategy employed by traditional retailers and online stores? What is the impact on distribution and fulfilment strategies?	15	CO3