Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Demand Planning & Forecasting **Semester: IV**
Program: BBA LM **Time: 03 hrs.**
Course Code: LSCM2008 **Max. Marks: 100**

Instructions:
1. The student must write his/her name and enrolment no. in the space designated above.
2. It is a Closed-Book Exam.
3. Students can use calculators to answer the numerical.
4. Laptops, Smartwatch and Mobile phones are not allowed during the exam.

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	**Which of the following are *essential characteristics* of a good demand forecast?** *(Multiple correct options possible)* A. High accuracy B. Long-term applicability only C. Timeliness D. Simplicity E. Based only on historical data	**2**	**CO1**
Q 2	**True or False:** A forecast model that uses only historical data and ignores market trends is likely to yield more reliable results for stable product categories than for innovative products.	**2**	**CO1**
Q 3	**A firm uses exponential smoothing with α = 0.3. If the forecast for this month was 200 units and actual demand was 260 units, what will be the forecast for next month?** A. 218 units B. 242 units C. 220 units D. 248 units	**2**	**CO2**
Q 4	**Which of the following are valid reasons to prefer Weighted Moving Average over Simple Moving Average?** *(Multiple correct options possible)* A. Simpler to compute B. Gives more importance to recent data C. Suitable for detecting trends D. Equally weights all observations E. Reduces error over time automatically	**2**	**CO2**

Q 5	**True or False:** A high Mean Absolute Deviation (MAD) indicates that the forecasting method is performing well.	**2**	**CO2**
Q 6	**Which qualitative method would be most appropriate in a situation where expert consensus is critical and anonymity must be preserved?** A. Nominal Group Technique B. Delphi Method C. Sales Force Composite D. Consumer Panel	**2**	**CO3**
Q 7	**You are launching a new tech gadget. Which qualitative forecasting techniques would provide valuable insights?** *(Multiple correct options possible)* A. Delphi Method B. Focus Groups C. Time Series Decomposition D. Consumer Panel Surveys E. Linear Regression	**2**	**CO3**
Q 8	**Match the production environment with the correct example:** 1. Make-to-Stock (MTS) 2. Assemble-to-Order (ATO) 3. Make-to-Order (MTO) a. Customized birthday cake b. Pre-built smartphones available in retail stores c. Personalized laptops assembled after order A. 1-a, 2-b, 3-c B. 1-b, 2-c, 3-a C. 1-c, 2-a, 3-b D. 1-b, 2-a, 3-c	**2**	**CO4**
Q 9	**Which of the following are key ingredients for successful CPFR implementation?** *(Multiple correct options possible)* A. Trust and collaboration B. Individual forecasting systems for each partner C. Shared business planning D. Isolated data pools E. Joint performance measurement	**2**	**CO4**
Q 10	**True or False:** Customer-generated forecasts are unreliable and should never be used in collaborative demand planning.	**2**	**CO1**

SECTION B 4Qx5M= 20 Marks			
Q 11	Analyze the differences between short-term, medium-term, and long-term forecasting horizons. How does the selection of a forecasting horizon impact decision-making in various types of firms?	**5**	**CO1**
Q 12	A manufacturing firm has seasonal demand for its products. Explain how the firm can use seasonal indexes and moving average techniques to improve forecast accuracy.	**5**	**CO2**
Q 13	Evaluate the strengths and limitations of the Delphi method in qualitative forecasting. Under what business conditions would it be most effective?	**5**	**CO3**
Q 14	Explain the concept of CPFR (Collaborative Planning, Forecasting, and Replenishment). What are the key ingredients necessary for successful implementation?	**5**	**CO4**

SECTION-C 3Qx10M=30 Marks			
Q 15	"Forecasting is the backbone of planning." Analyze this statement by discussing the role of demand forecasting in different types of firms. How do forecasting characteristics and time horizons vary across industries?	**10**	**CO1**
Q 16	A company is planning to adopt Sales and Operations Planning (S&OP) to streamline production and demand management. Explain how aggregate planning strategies (chase, level, mixed) can be aligned with S&OP objectives. Support your answer with practical examples.	**10**	**CO4**
Q 17	Using **exponential smoothing** with $\alpha = 0.2$, forecast the following demand series: • Month 1 (Actual): 200 units (Use as initial forecast) • Month 2 (Actual): 240 units • Month 3 (Actual): 210 units • Month 4 (Actual): 250 units a) Calculate forecasts from Month 2 to Month 5. b) Compute the **Mean Absolute Deviation (MAD)** for Months 2 to 4. OR A product's demand is influenced by expert judgment and market conditions. Assume the following results from two rounds of the **Delphi Method**: • Round 1: Expert A - 300, Expert B - 280, Expert C - 320 • Round 2: Expert A - 310, Expert B - 295, Expert C - 305 a) Calculate the **average forecast** for each round. b) Evaluate the **convergence trend** and comment on the reliability of the final forecast.	**10**	**CO2 / CO3**

SECTION-D 2Qx15M= 30 Marks			
Q 18	You are appointed as a demand forecasting analyst in a multinational retail chain entering a new international market. The management team asks you to develop a forecasting plan considering various products and customer segments. a) **Question:** Design a demand forecasting framework by analyzing the **types of forecasts, characteristics of good forecasts, and appropriate forecasting time horizons**. b) Justify your choices by linking them to different departments such as procurement, sales, and supply chain. OR You are the demand planning lead for a fast-moving consumer goods (FMCG) company. The management wants to integrate **Sales and Operations Planning (S&OP)** with **CPFR** and **ERP** systems to optimize forecast accuracy, production, and inventory levels. **Question:** Create a comprehensive integration plan that includes: • The role of S&OP in demand planning • Benefits and implementation steps of CPFR • How ERP supports these processes Support your plan with practical examples and key performance metrics.	**15**	**CO1 / CO4**
Q 19	A startup is launching an innovative wearable device. Since no historical sales data exists, the team must rely on qualitative techniques to forecast demand. a) Analyze the relevance and implementation of **Delphi, Nominal Group Technique, and Consumer Panel Surveys** for this scenario. b) Evaluate the advantages and limitations of each of the qualitative techniques, and c) Recommend a step-by-step plan for demand estimation.	**15**	**CO3**