Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May/June 2021

Course: Demand Planning and Forecasting — **Semester: II**
Program: MBA LSCM — **Time: 03 hrs.**
Course code: LSCM 7009 — **Max. Marks: 100**

SECTION A

1. **Each Question will carry 5 Marks**
2. **Instruction: Complete the statement / Select the correct answer(s)**

S.No	Question	CO
Q 1	**Fill in the blanks:** **a)** _____ (r^2 or R-squared) is a statistical measurement that examines how differences in one variable can be explained by the difference in a second variable, when predicting the outcome of a given event. **b)** ARMA stands for _____. **c)** The cause of hedge betting in whiplash effect is _____. **d)** Project RAND developed the Delphi method during the year _____. **e)** _____ represents no linear relationship between the movements of the two variables.	**CO1**
Q 2	**Attempt the following:** **a)** Why to use tracking signal? **b)** Consider, if the actual sales for a product in January 2013 is 2728 units, then how much will be the forecast demand for the month February 2013? Apply Naïve approach. **c)** Safety stock is used for _____. **d)** Demand forecasting used for both push and pull processes. *True/ False?* **e)** Repetitive forecasting is defined as _____.	**CO1**
Q 3	**True/False statements:** **a)** Auto box cannot adjusts the model for lead and lag relationships automatically. **b)** "FORECAST.LINEAR" function used for performing linear regression analysis in spreadsheets. **c)** The Box-Jenkins Model is a forecasting methodology using regression studies. **d)** SCA System provides advanced outlier detection. **e)** Kinaxis Rapid Response is the supply chain planning software that easily monitor and respond to demand and material requirements planning (MRP) issues.	**CO2**
Q 4	List down five mathematical approaches to Aggregate Planning namely, a)_____; b) _____; c)_____; d)_____; e) _____	**CO2**

<table>
<tr><td>Q 5</td><td>The five tools for market intelligence are _____, _____, _____, _____, and _____.</td><td>CO3</td></tr>
<tr><td>Q 6</td><td>The full form of CPFR is _____ model and have eight collaborative task which form a cycle of four activities namely _____, _____, _____, and _____.</td><td>CO3</td></tr>
<tr><td colspan="3">SECTION B
1. Each question will carry 10 marks
2. Instruction: Write short / brief notes in your own words only.</td></tr>
<tr><td>Q 7</td><td>A luxury vehicle company “Bayerische Motoren Werke AG” adopted ATO strategy. Explain how and why in your own words.
OR
How push-based ATP is different from pull-based ATP? Explain briefly with suitable examples in your own words.</td><td>CO1</td></tr>
<tr><td>Q 8</td><td>Imagine yourself working in a large Cadbury’s chocolate company where you should perform an effective sale forecasts of several products (choose any two) for the company. Write the steps for each product.</td><td>CO1</td></tr>
<tr><td>Q 9</td><td>Define the term “Holt's trend-corrected double exponential smoothing” in your own words. Also, write down all the equations for it.</td><td>CO2</td></tr>
<tr><td>Q 10</td><td>Explain “Seasonality Index”. What are steps involved in calculating the forecasting seasonality? Support your answer with an example.
OR
Customer footfalls in ‘Carnival’ shopping mall are being analysed. The data for the last few weeks are given in the table 1 below:
Table 1
<table>
<tr><th>Week No.</th><th>Number of footfalls (in ’00)</th></tr>
<tr><td>1</td><td>85</td></tr>
<tr><td>2</td><td>95</td></tr>
<tr><td>3</td><td>110</td></tr>
<tr><td>4</td><td>100</td></tr>
<tr><td>5</td><td>115</td></tr>
<tr><td>6</td><td>130</td></tr>
<tr><td>7</td><td>150</td></tr>
<tr><td>8</td><td>145</td></tr>
</table>
Test the following forecast models for their performance.
(a) Exponential smoothing with alpha = 0.4. Start with the forecast for week 4 at 96.3 (in ’00) footfalls.
(b) 4-week simple moving average.
Which method seems give a better fit? You may base your reply upon MAD calculations.</td><td>CO3</td></tr>
<tr><td>Q 11</td><td>A manufacturer of tricycles for children in the age group of two to four years commissioned a market research firm to understand the factors that influenced the demand for its product. After some detailed studies, the market research firm concluded that the demand was a</td><td>CO4</td></tr>
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	simple linear function of the number of newly married couples in the city. Based on this assumption, build a causal model for forecasting the demand for the product using the data given below in Table 2 collected for a residential area in a city. Also, estimate the demand for tricycles if the number of new marriages is 150 and 250. **Table 2** **S.No. | New Marriages | Demand for tricycles** 1 | 200 | 165 2 | 235 | 184 3 | 210 | 180 4 | 197 | 145 5 | 225 | 190 6 | 240 | 169 7 | 217 | 180 8 | 225 | 170	
SECTION C **1. Each Question carries 20 Marks.** **2. Instruction: Write long answer.**		
Q 12	What role does forecasting plays in the education sector? How dependent and independent variables use in educational forecasting? Give examples. Explain the concept of forecasting time horizon and forecasting techniques used for different forecasting variables in education sector. Give your viewpoint.	**CO4**