



**CII Institute of Logistics**  
PGDSCM & Certificate Programs  
Semester-end Examination – June 2009  
**Demand Forecasting and Planning**

Time : Three Hours

Marks : 100

**Part A**

*Answer all questions (20 x 1 = 20 Marks)*

1. Demand is not a single quantity. TRUE / FALSE
2. When the supply curve shifts to the right only the equilibrium price rises and the equilibrium quantity rises. TRUE / FALSE
3. YED measures the responsiveness of demand to a given change in income TRUE / FALSE
4. To avoid inventory of finished goods, it is advisable that manufacturers should “make to stock” rather than “make to order”. TRUE / FALSE
5. An important issue for all forecasts is the “horizon”, i.e., how far into the future we look. As a general rule, the farther into the future we look, the more clouded our vision become. TRUE / FALSE
6. There is no difference in the techniques involved in “judgemental” and “experimental” approaches of Forecasting. TRUE / FALSE
7. Trends are always linear. TRUE / FALSE.
8. RMSE is merely the square root of MSE. TRUE / FALSE
9. The Poisson is discrete distribution and its mean should be an integer. TRUE / FALSE
10. Regression techniques is quite ideal for long range forecasting. TRUE / FALSE
11. A simple moving average is the average of the demands occurring in all previous periods. The demands fall periods are equally weighted. TRUE / FALSE
12. The Delphi technique is a group process intended to achieve a consensus forecast. TRUE / FALSE
13. Forecasting is some sort of an approximation to reality. TRUE / FALSE
14. Surveys are a “Top Down” approach where each individual does not contribute a piece of what will become the final forecast. TRUE / FALSE

15. Double exponential smoothing tends to smooth and noise in a stable demand time series. TRUE / FALSE
16. The Gamma Poisson distribution would model the case when demand in any given period in Poisson, but the mean of Poisson varies over time as though in each period if were an independent realization from a Gamma probability distribution. TRUE / FALSE
17. The trend and seasonal components method is appropriate when the time series does not exhibit a linear trend and seasonality. TRUE / FALSE
18. Jury of executive opinion involves a large group of high – level managers and is a long drawn out process. TRUE / FALSE
19. Regression analysis is a forecasting technique that establishes a relationship between variables. TRUE / FALSE
20. For inventory control exponential smoothing and moving average techniques are ideal. TRUE / FALSE

**Part B**

Answer all FOUR

Marks: 4 x 10 =40

1. What are the principles involved in selecting a forecasting method based on time horizon? Take a typical product to illustrate your answer?
2. A. Do you think that Delphi technique is a useful tool? Justify your answer?  
B. Explain the basics of the “Delphi method”.
3. Write short notes on the following:  
A. Price elasticity of demand.  
B. Mean absolute deviation and its use.  
C. Poisson distribution.
4. The past sales of a particular product are shown in the table below:

Month	Sales
January	Rs. 10,000
February	Rs. 13,500
March	Rs. 11,500
April	Rs. 14,000

- A. Past experiences has shown that a Weightage of 0.5 as the most recent period (the month of April), 0.3 on the month of March, and 0.2 on the month of February, what will be the forecast for May? What do you note about the weights used?

- B. (1) Write a note on an exponential model. What is its advantage over Moving average methods?  
 (2) An automobile dealer predicted the sale of 23,000 vehicles for March in his region. The actual sales were 22,150. Using  $\alpha$  of 0.40 find out the forecast for April.

**Part C**

**Case Study**

A certain refinery has a processing unit for making lube oil. Though the production of lubricating oil requires high Capital investment, the profit margin from this product is higher than natural stringent run products such as gasoline and diesel fuel. The production manager in the lube oil plant needs to develop a simple forecasting model for estimating its blending requirements. Lubricating oil unlike other refinery products is not very seasonal. Table given below gives the actual lubricating oil blended in a particular year

Month	Actual oil used (litres)	Month	Actual oil used (litres)
January	10000	July	11000
February	12000	August	22000
March	13000	September	31000
April	16000	October	18000
May	19000	November	16000
June	17000	December	14000

**QUESTIONS**

Answer any FOUR

Marks: 4 x 10 =40

1. Develop a three month simple moving average forecasting model.
2. Develop a three month weighted moving average using a factor of 0.6 for the most recent period, 0.2 for the next period and 0.2 for the older period.
3. Using the concept of the mean absolute deviation, which model is preferred?
4. Use the preferred model to forecast the lube oil requirements for the following January?
5. Plot the actual data and the two forecasting models

\*\*\*\*\*