

POSTAL Book Package

2023

GATE • PSUs

PRODUCTION AND INDUSTRIAL ENGINEERING

Operations Research & Operations Management

Objective Practice Sets

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Forecasting

MCQ and NAT Questions

- Q.1** Which of the following is not true for forecasting?
 (a) Forecasts are rarely perfect.
 (b) The underlying casual system will remain same in the future.
 (c) Forecast for group of items is accurate than individual item.
 (d) Short range forecasts are less accurate than long term forecasts.
- Q.2** Which of the following is not a forecasting technique?
 (a) Judgmental (b) Time Series Analysis
 (c) Time Horizon (d) Associative
- Q.3** In which of the following forecasting technique, subjective inputs obtained from various sources are analyzed?
 (a) Judgmental forecast
 (b) Time series forecast
 (c) Associative model
 (d) All of the above
- Q.4** Delphi method is used for
 (a) Judgmental forecast
 (b) Time series forecast
 (c) Associative model
 (d) All of the above
- Q.5** A linear trend equation has the form
 (a) $F_t = a - bt$ (b) $F_t = a + bt$
 (c) $F_t = 2a - bt$ (d) $F_t = 2a + bt$
- Q.6** If the actual demand for a period is 100 units but forecast demand was 90 units. The forecast error is
 (a) -10 (b) 10
 (c) -5 (d) 5
- Q.7** Which of the following is an example of time series problem?
 1. Estimating number of hotel rooms booking in next 6 months.
 2. Estimating the total sales in next 3 years of an insurance company.
 3. Estimating the number of calls for the next one week.
 (a) Only 1 & 2 (b) Only 3
 (c) Only 2 & 3 (d) 1, 2 and 3
- Q.8** Sum of weights in exponential smoothing is
 (a) < 1 (b) 1
 (c) > 1 (d) None of the above
- Q.9** The use of smoothing technique is appropriate when
 (a) A random behaviour is the primary source of variation.
 (b) Seasonality is present.
 (c) Data exhibit a strong trend.
 (d) All of the above
- Q.10** Time-series analysis is based on the assumption that
 (a) Random error terms are normally distributed.
 (b) There are dependable correlations between the variable to be forecast and other independent variables.
 (c) Past patterns in the variable to be forecast will continue unchanged into the future.
 (d) The data do not exhibit a trend.
- Q.11** Forecasts are referred to as naive if they
 (a) are based only on past values of the variable.
 (b) are short-term forecasts.
 (c) are long-term forecasts.
 (d) generally result in incorrect forecasts.
- Q.12** Which of the following is not a qualitative forecasting technique?
 (a) Surveys of consumer expenditure plans
 (b) Perspectives of foreign advisory councils
 (c) Consumer intention polling
 (d) Time-series analysis

Multiple Select Questions (MSQ)

- Q.58** An analysis of past data reveals the following information
Trend equation: $yt = 15.8x + 1008$
Origin : January 2005
 x unit : One month
 y unit : Monthly demand
Seasonality indices for January and February are 1.034 and 1.112 respectively. Choose the correct option/s
- (a) The demand forecast for January 2007 is 1435
 - (b) The demand forecast for January 2007 is 1240
 - (c) The demand forecast for February 2007 is 1560
 - (d) The demand forecast for February 2007 is 1350
- Q.59** Consider the following statements with respect to forecasting and choose the correct option/s
- (a) In the exponential smoothing method of forecasting, the previous forecast is adjusted by a fraction of the error is that forecast to obtain the next forecast
 - (b) Exponential smoothing method of forecasting is the appropriate one under all conditions.

- (c) A high value of α would always lead to better forecast since it allows making quick adjustments to the forecast
- (d) For demand forecasting purposes, a company should always use the same value of α for reasons of stability

- Q.60** The following table shows the eight weeks demand forecasted and actual demand occurred.

Week	Forecast Demand	Actual Demand	Week	Forecast Demand	Actual Demand
1	140	137	5	140	180
2	140	133	6	150	170
3	140	150	7	150	185
4	140	160	8	150	205

- Choose the correct option/s
- (a) Means absolute deviation of forecast errors is 23.75
 - (b) Run Sun Forecast Error (RSFE) is 21.25
 - (c) Run Sum Forecast Error (RSFE) is 170
 - (d) Tracking signal is 7.16



Answers		Forecasting					
1. (d)	2. (c)	3. (a)	4. (a)	5. (a)	6. (b)	7. (d)	8. (b)
9. (a)	10. (c)	11. (a)	12. (b)	13. (d)	14. (c)	15. (a)	16. (d)
17. (d)	18. (d)	19. (a)	20. (a)	21. (c)	22. (a)	23. (d)	24. (d)
25. (b)	26. (d)	27. (a)	28. (a)	29. (c)	30. (d)	31. (c)	32. (a)
33. (c)	34. (d)	35. (d)	36. (d)	37. (c)	38. (b)	39. (a)	40. (a)
41. (c)	42. (b)	43. (a)	44. (126)	45. (133)	46. (77)	47. (90)	48. (103.3)
49. (99)	50. (100.1)	51. (8)	52. (36)	53. (124)	54. (722)	55. (732)	56. (52.5)
57. (7)	58. (a, c)	59. (a)	60. (a, c, d)				

Explanations Forecasting

1. (d)

In forecasting, short term forecast is more accurate than the long term forecast.

2. (c)

Time horizon is not a forecasting technique.

3. (a)

In judgmental forecast technique, subjective inputs obtained from various sources are analyzed.

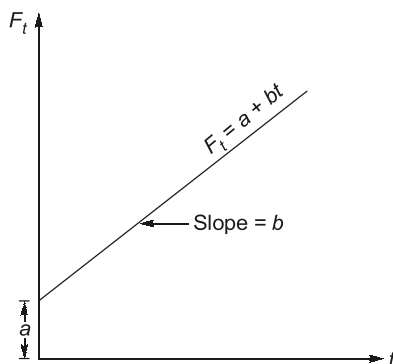
4. (a)

Delphi method is used for judgmental forecast technique in which group of experts take the decision regarding forecasting.

5. (a)

Forecasted demand,

$$F_t = a + bt$$



6. (b)

Forecast error,

$$\begin{aligned} e_i &= D_t - F_t \\ &= 100 - 90 = 10 \text{ units} \end{aligned}$$

7. (d)

Time Series Analysis can be used for estimating number of hotel rooms booking in next 6 months, estimating the total sales in next 3 years of an insurance company, estimating the number of calls for the next week based on the past data availability.

8. (b)

Sum of weights in exponential smoothing is always equal to 1.

$$\sum_{i=1}^n x = 1$$

9. (a)

The use of a smoothing technique is appropriate when a random behaviour is the primary source of variation.

10. (c)

Time series analysis is based on the assumption that past patterns in the variable to be forecast will continue unchanged into the future.

11. (a)

Forecasts are referred to as naive if they are based only on past values of the variable.

12. (b)

Time-series analysis is a quantitative technique.

13. (d)

The Root Mean-Square error is a measure of forecast accuracy.

Root Mean-Square Forecast Error (RMSE)

$$= \frac{\sum_{t=1}^n (D_t - F_t)^2}{n}$$

14. (c)

Tracking signals are used to monitor forecasts

$$T.S. = \frac{\text{BIAS}}{\text{MAD}}$$

If it is negative, it implies that demand is greater than the forecast (under estimation of forecast).

15. (a)

Linear Regression is an associative technique and it is most similar to the trend projection method of forecasting.

16. (d)

Opinion Survey Method is relatively simple and practical method for forecasting demands and especially for new products.

17. (d)

Market Surveys and Delphi Methods are used for making long range forecasts.