

PRACTICE QUESTIONS

SAS

A00-407

Forecasting and Optimization Using SAS Viya

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EDITION Free Set 2

QUESTIONS 10

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EXAM SAS A00-407, Forecasting and Optimization Using SAS Viya

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1. A monthly series rises steadily across six years while also repeating a peak every December. Which two components does the analyst need to model?

- A Noise only
- B Intervention and noise
- C Trend and seasonality
- D Cycle and residual only

Answer: C

The steady rise is a trend, and the December peak repeats every twelve months, which is seasonality. Noise alone would explain neither pattern. A cycle has no fixed calendar period, which makes the cycle-based option a tempting but poor fit for a December peak.

2. Known future events such as promotions or public holidays can be supplied as input variables so that a forecast reflects planned spikes in demand.

- A True
- B False

Answer: A (True)

Events whose dates are known in advance can be provided as inputs over the forecast horizon, which lets the forecast reflect planned spikes. This is the standard use of exogenous inputs in forecasting. The statement is true.

3. When a forecaster compares candidate exponential smoothing models on fit, which criterion is typically used to rank them?

- A The count of training rows
- B Alphabetical order of the model names
- C The length of the forecast horizon
- D An information criterion such as AIC

Answer: D

Information criteria such as AIC balance fit against the number of parameters, which makes them a standard basis for ranking candidate models. The number of training rows does not measure model quality, although it is a tempting proxy for reliability. Alphabetical order is arbitrary, and the forecast horizon is set before modeling.

4. In exponential smoothing, the parameter that controls how quickly the level adapts to new data is called the _____ weight.

Answer: smoothing (also accepted: alpha)

The smoothing weight alpha sets how much each new observation shifts the level, so higher values react faster. The damping parameter controls how a trend flattens, a different role that makes it the tempting alternative. The horizon is the number of future periods forecast, not a smoothing parameter.

5. Which two actions are appropriate when forecasts for many products must be produced at scale? (Choose two.)
- A Select a model for each series automatically using a common evaluation rule
 - B Review every series by hand before any forecast is produced
 - C Store the chosen model and its accuracy for each series
 - D Use one model for all products regardless of their patterns
 - E Discard series with fewer than ten observations without reporting them

Answer: A, C

Automatic model selection with a shared evaluation rule lets many series be forecast consistently, and storing the chosen model and its accuracy keeps the results auditable. Manual review of every series does not scale, which is the tempting but impractical choice. One model for all patterns ignores real differences, and silently discarding short series hides a data decision.

6. Which SAS procedure fits unobserved components models that combine trend, seasonal and irregular terms in a state space form?
- A PROC NETFLOW
 - B PROC UCM
 - C PROC OPTMODEL
 - D PROC VARMAX

Answer: B

PROC UCM fits unobserved components models with trend, seasonal, cycle and irregular terms. PROC VARMAX fits multivariate vector models, which makes it the tempting distractor for multi-series data. PROC NETFLOW and PROC OPTMODEL are optimization procedures.

7. Which procedure fits a vector autoregressive model for several related time series at once?
- A PROC TIMESERIES
 - B PROC REG
 - C PROC VARMAX
 - D PROC FREQ for frequency tables

Answer: C

PROC VARMAX fits vector autoregressive and related multivariate models that capture interactions among several series. PROC TIMESERIES prepares and summarizes series rather than fitting a joint model, which makes it the tempting distractor. PROC REG fits regressions without the time series structure, and PROC FREQ builds frequency tables.

8. Top-down forecasting sums the forecasts of the lowest-level series to produce the aggregate forecast.
- A True
 - B False

Answer: B (False)

Summing the lowest-level forecasts is bottom-up aggregation, not top-down. Top-down methods forecast the total first and then distribute it to lower levels using historical proportions. The statement reverses the two methods, so it is false.

9. Which evaluation approach best estimates how a forecast will perform on future months?
- A Rolling-origin holdout evaluation over periods the model did not see
 - B Fitted error on the full training series
 - C Average of the first five observations
 - D Counting the number of model parameters

Answer: A

Rolling-origin evaluation repeatedly forecasts from several cutoffs into periods the model did not see, which mirrors real use. Fitted error on the training data is optimistic, which is the tempting mistake. Averages of early observations and parameter counts do not measure forecast accuracy.

10. In an optimization model, what is the role of a decision variable?

- A** A quantity the solver chooses to optimize the objective
- B** A fixed input supplied by the analyst
- C** A constant such as a unit cost
- D** A label used only in the output report

Answer: A

Decision variables are the quantities the solver chooses, such as how many units to produce, and the objective and constraints are written in terms of them. Fixed inputs such as capacities are parameters rather than decisions, which makes them the tempting confusion. Unit costs are constants, and labels do not affect the model.