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38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

Catalyst Futures BV

CFST1

Catalyst Futures Systematic Trading Level I

EDITION

Demo

QUESTIONS

9

ISSUED

September 4, 2026

Before you begin

What this is

9 practice questions for Catalyst Futures BV **CFST1**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, **CFST1**
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

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QUESTION 1

SINGLE CHOICE

Which of the following best describes the distinction between alpha and beta in a systematic trading context?

- ☐ **A** Alpha is the return attributable to a strategy's exposure to systematic risk factors, while beta is the idiosyncratic excess return.
- ☒ **B** Alpha is the risk-adjusted excess return of a strategy beyond what would be explained by its factor exposures, while beta represents the strategy's sensitivity to those underlying factors.
- ☐ **C** Alpha refers exclusively to mean-reversion signals, while beta refers exclusively to momentum signals.
- ☐ **D** Alpha and beta are interchangeable terms describing the expected return of a systematic strategy.

ANSWER B

WHY In systematic trading, beta measures a strategy's sensitivity to systematic risk factors (such as the equity market, value, or momentum), while alpha is the risk-adjusted excess return remaining after these factor exposures have been accounted for. Option A reverses the definitions, option C incorrectly restricts the terms to specific signal types, and option D wrongly treats the terms as synonyms.

QUESTION 2

SINGLE CHOICE

A quantitative researcher observes that her in-sample model fits historical data extremely closely but performs poorly on out-of-sample data. Which characteristic of the model is most likely being exhibited?

- ☐ **A** High bias and low variance
- ☒ **B** Low bias and high variance
- ☐ **C** Both low bias and low variance
- ☐ **D** Both high bias and high variance

ANSWER B

WHY A model that fits in-sample data very closely yet generalises poorly has low bias (it captures the training patterns tightly) but high variance (it is overly sensitive to the specific data it was trained on). This is classic overfitting, a central concern of the bias-variance tradeoff in systematic strategy development.

QUESTION 3

SINGLE CHOICE

Which of the following is the most effective structural mitigation against overfitting when developing a systematic trading model?

- ☐ A Maximising the number of parameters used to describe the historical data
- ☐ B Performing all parameter tuning on the full in-sample dataset without a hold-out
- ☒ C Dividing the data into distinct in-sample and out-of-sample segments and reserving the out-of-sample portion for validation
- ☐ D Re-estimating the model repeatedly on the same data until the in-sample fit is perfect

ANSWER C

WHY Reserving an out-of-sample segment that is not used during model construction or parameter selection is the standard structural safeguard against overfitting. The other options either worsen overfitting (adding parameters, re-estimating on the same data) or eliminate the very validation mechanism that detects it.

QUESTION 4

SINGLE CHOICE

When evaluating the net performance of a high-turnover systematic strategy, which cost component is typically considered variable and scales approximately linearly with the number of shares or contracts traded?

- ☐ A Fixed exchange listing fees
- ☐ B Regulatory reporting fees charged once per year
- ☒ C Brokerage commissions and bid-ask spread costs
- ☐ D Initial data licence subscription cost

ANSWER C

WHY Brokerage commissions and the bid-ask spread are the classic variable transaction-cost components: they are incurred each time a trade is executed and therefore grow approximately linearly with trading activity. Fixed exchange fees, annual regulatory charges and upfront data licence costs do not scale with turnover.

QUESTION 5

SINGLE CHOICE

Which statement correctly characterises a well-constructed backtest of a systematic trading strategy?

- ☐ A A backtest that produces strong in-sample performance is sufficient evidence that the strategy will be profitable live.
- ☒ B A backtest should incorporate realistic assumptions about transaction costs, slippage and financing, and the underlying data should be adjusted for corporate actions such as splits and dividends.
- ☐ C Survivorship-free and corporate-action-adjusted datasets are unnecessary because they reduce the reported performance.
- ☐ D Backtest results should be optimised until the strategy achieves the maximum Sharpe ratio on the historical sample.

ANSWER B

WHY A valid backtest must use point-in-time, survivorship-free data adjusted for corporate actions and must incorporate realistic frictions such as commissions, spreads and slippage. Option A ignores the gap between in-sample and live performance, option C is wrong because adjusted datasets give a more realistic estimate, and option D describes data-snooping, not validation.

QUESTION 6

SINGLE CHOICE

A systematic equity strategy generated an annualised arithmetic return of 9%, an annualised volatility of 12%, and a risk-free rate of 1%. What is its approximate Sharpe ratio?

- ☐ A 0.50
- ☒ B 0.67
- ☐ C 0.75
- ☐ D 1.20

ANSWER B

WHY The Sharpe ratio is calculated as $(\text{portfolio return} - \text{risk-free rate}) / \text{portfolio volatility}$. With the figures given, $(9\% - 1\%) / 12\% = 8\% / 12\% \approx 0.67$. The other options correspond to miscalculations, such as omitting the risk-free rate or dividing by the wrong quantity.

QUESTION 7

SINGLE CHOICE

In a limit order book, what is the immediate consequence for the quoted bid-ask spread when a large market buy order consumes all liquidity at the best ask level and the next-best ask is priced higher?

- ☐ A The spread narrows because liquidity has been removed from the book.
- ☐ B The spread remains unchanged because the order was executed at the best ask.
- ☒ C The spread widens because the next available execution price (the new best ask) is further from the prevailing best bid.
- ☐ D The spread becomes negative, indicating a crossed book.

ANSWER C

WHY When the resting liquidity at the best ask is exhausted, the displayed best ask moves up the queue to the next price level, which is necessarily higher. Since the best bid is unchanged in this scenario, the distance between best bid and best ask — the spread — widens. A negative spread would only occur in a crossed-book anomaly, not in normal execution.

QUESTION 8

SINGLE CHOICE

A systematic strategy buys assets that have exhibited negative returns over the past month and shorts assets with positive one-month returns, holding the positions for one week. This strategy is best classified as:

- ☐ A A momentum strategy
- ☒ B A mean-reversion (short-term reversal) strategy
- ☐ C A market-neutral value strategy
- ☐ D A buy-and-hold passive strategy

ANSWER B

WHY The rule buys recent losers and shorts recent winners, betting that short-term price movements will reverse. This is the canonical short-term reversal / mean-reversion pattern. A momentum strategy would do the opposite (buy winners, sell losers), and the rule described has no value-style or long-horizon passive element.

QUESTION 9

MULTIPLE CHOICE

Which of the following are typically considered primary risk sources for a diversified systematic futures portfolio? (Choose two.)

- ☒ **A** Model risk arising from incorrect specification or overfitting of the signal
- ☒ **B** Liquidity risk arising from inability to enter or exit positions at quoted prices
- ☐ **C** The colour scheme used in the firm's internal performance dashboard
- ☐ **D** Counterparty credit risk with the broker holding the positions

ANSWER A • B

WHY Model risk (from mis-specification, overfitting or regime change) and liquidity risk (from market impact and execution slippage in less-traded contracts) are core risk sources for a systematic futures book. Option C is an aesthetic concern unrelated to portfolio risk, and option D describes a settlement/broker risk that, while real, is not a primary risk source for a diversified futures portfolio of the type covered at Level I.