

Associate PRM Exam English

PRMIA 8005

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Topic Break Down

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QUESTION NO: 1 - (SIMULATION)

Which of the below are a way to classify risk governance structures:

- A Reactive, Preventative and Active
- B. Committee based, regulation based and board mandated
- C. Top-down and Bottom-up
- D. Active and Passive

ANSWER: See the explanation for the answer

Explanation:

Correct answer: A. Reactive, Preventative and Active.

PRMIA classifies risk-governance structures into:

Reactive: identifies and responds to issues after they occur.

Preventative: aims to identify and mitigate risks before adverse events occur.

Active: integrates risk governance with operational and organizational efficiency considerations.

Therefore, select **A**.

QUESTION NO: 2

The Options Theoretic approach to calculating economic capital considers the value of capital as being equivalent to a call option with a strike price equal to:

- A. The notional value of the debt
- B. The market value of the debt
- C. The value of the firm
- D. The value of the assets

ANSWER: A

Explanation:

The notional value of the debt is correct. In the options-theoretic, or structural, approach to firm value, shareholders hold a residual claim on the firm's assets. At the debt-maturity date, equityholders receive the value remaining after the promised debt obligation has been paid. This payoff is mathematically equivalent to that of a call option on the firm's assets: the underlying asset is the total value of firm assets, while the exercise price is the contractual face, or notional, amount owed to debtholders. If asset value exceeds that promised amount, shareholders can satisfy the debt claim and retain the residual value; if it does not, limited liability permits them to surrender the firm to creditors, leaving equity with no negative payoff. This framework is the foundation of the Merton structural credit-risk model and provides a top-down way to relate a firm's asset value, leverage, default risk, and capital position. The strike is therefore based on the debt's promised repayment amount, rather than a value that changes continuously with market conditions. See Robert Merton's foundational work, [On the Pricing of Corporate Debt: The Risk Structure of Interest Rates](#), and the Federal Reserve's summary of the [Merton model for credit risk](#).

QUESTION NO: 3

What is (are) the lesson(s) of the Barings' failure?

- A. Incentive plans have risk management implications
- B. Front and back offices need to be independent

- C. Large profits can be an indicator of risk
- D. All of the above

ANSWER: D

Explanation:

The correct answer is *All of the above*. Barings Bank's collapse in 1995 is a foundational operational-risk case because it shows how failures in incentives, segregation of duties, and risk escalation can interact catastrophically. Nick Leeson held responsibilities spanning both trading activity and back-office settlement, allowing him to conceal unauthorized positions and losses instead of having those activities independently checked and reconciled. The case also demonstrates that compensation and performance pressures can create incentives to take or hide excessive risks when governance and controls are weak. Finally, unusually high reported profits should not be accepted at face value: they require independent validation, including review of the positions, valuation methods, limit usage, liquidity assumptions, and underlying sources of return. Effective risk management therefore requires independent control functions, clear accountability, robust reconciliations, risk limits, and a culture in which favorable performance receives the same credible challenge as adverse results. The Bank of England's report on Barings documents the control and supervisory failures surrounding the collapse, while the Basel Committee's operational-risk principles set out the broader governance and control expectations relevant to such events. See the [Bank of England report on Barings](#) and the [Basel Committee's Principles for the Sound Management of Operational Risk](#).

QUESTION NO: 4

The sensitivity analysis required under IFRS would have done what for China Aviation Oil?

- A. Provided investors and analysts with insight into the dynamics of value changes, and the sensitivity of fair value to the underlying drivers of interest rates, exchange rates, and commodity prices
- B. Only provided the intrinsic value of its outstanding option positions
- C. Only provided the time value of its outstanding option position
- D. None of the above

ANSWER: A

Explanation:

Provided investors and analysts with insight into the dynamics of value changes, and the sensitivity of fair value to the underlying drivers of interest rates, exchange rates, and commodity prices is correct. The purpose of IFRS market-risk sensitivity disclosure is to make the effects of reasonably possible changes in relevant risk variables visible to users of financial statements. For a business such as China Aviation Oil, whose derivatives and commercial exposures could be strongly affected by movements in oil prices, currencies, and interest rates, this analysis would show how reported profit or loss and, where applicable, equity could change when those underlying market factors move.

That information is especially valuable where the instruments have nonlinear payoffs, such as option positions, because a single reported fair value at the reporting date does not by itself communicate how rapidly the position may gain or lose value under changing market conditions. A properly prepared sensitivity analysis therefore gives investors and analysts a clearer view of the firm's exposure profile, concentration of market risk, and potential volatility in financial results. IFRS 7 requires disclosures about the nature and extent of risks arising from financial instruments, including sensitivity analyses for each type of market risk to which an entity is exposed. See [IFRS 7—Financial Instruments: Disclosures](#) and the [IFRS 7 issued standard](#).

QUESTION NO: 5

Which of the following best describes Altman's Z-score

- A. A calculation of default probabilities

- B. A regression of probability of survival against a given set of factors
- C. A numerical computation based upon accounting ratios
- D. A standardized z based upon the normal distribution

ANSWER: C

Explanation:

“A numerical computation based upon accounting ratios” correctly describes Altman’s Z-score. Developed by Edward Altman as a corporate-failure prediction model, the score combines several financial-statement measures into one weighted numerical value. The inputs are accounting ratios designed to capture important aspects of a firm’s financial condition, including liquidity, cumulative profitability, operating profitability, leverage or market-value coverage, and asset turnover. A commonly cited original formulation combines working capital relative to total assets, retained earnings relative to total assets, earnings before interest and taxes relative to total assets, market value of equity relative to total liabilities, and sales relative to total assets. The resulting score is used as an indicator of financial distress risk and to classify firms into broad zones associated with relative financial health or potential distress. Thus, the Z-score is fundamentally a multivariate accounting-ratio model: it transforms reported financial and market data into a single diagnostic score rather than being merely a standardized normal-distribution value. Altman’s original research is available through the [Journal of Finance](#), and a practical summary of the model and its ratio inputs is provided by [Corporate Finance Institute](#).

QUESTION NO: 6

Which of the following credit risk models focuses on default alone and ignores credit migration when assessing credit risk?

- A. CreditPortfolio View
- B. The contingent claims approach
- C. The CreditMetrics approach
- D. The actuarial approach

ANSWER: D

Explanation:

The actuarial approach is correct because it represents credit loss primarily through the occurrence of default, rather than through changes in an obligor’s credit quality before default. In this framework, an exposure is treated as having a default/no-default outcome over the chosen risk horizon. Portfolio credit loss is then modeled from default probabilities, loss given default, exposure amounts, and the dependence among default events. This makes the approach especially suitable for estimating the distribution of losses caused by defaults in a large credit portfolio.

CreditRisk+, the well-known actuarial credit-risk model developed by Credit Suisse, applies this default-mode perspective. It uses an actuarial-style loss-distribution methodology in which defaults are modeled as random events and portfolio losses arise when those events occur. A rating downgrade that does not result in default does not itself produce a mark-to-market loss in the model’s core formulation. Accordingly, the relevant risk measure is driven by default incidence and severity, consistent with a default-only model. The Bank for International Settlements discusses CreditRisk+ as a major portfolio credit-risk modeling approach in its overview of credit-risk models: [BIS Working Paper: Credit Risk Modelling](#). Credit Suisse’s description of the methodology is also available in its [CreditRisk+ technical document](#).

QUESTION NO: 7

Under the KMV Moody’s approach to credit risk measurement, how is the distance to default converted to expected default frequencies?

- A. Using a proprietary database based on historical information
- B. Using migration matrices

- C. Using a normal distribution
- D. Using Monte Carlo simulations

ANSWER: A

Explanation:

Using a proprietary database based on historical information is correct because the Moody's KMV methodology does not treat distance to default as a default probability directly. Distance to default is a market-based measure of how far a firm's estimated asset value is from its estimated default point, expressed relative to asset-value volatility. To obtain an Expected Default Frequency (EDF), Moody's KMV maps firms with comparable distance-to-default values to their observed subsequent default experience in a large empirical database. This historical calibration produces an estimated frequency of default over the selected horizon, rather than relying solely on a parametric theoretical distribution. The use of a broad proprietary default database is important because the relationship between distance to default and realized default rates is empirically estimated and may reflect features of real credit markets not captured by a simple structural model alone. Moody's describes EDF measures as forward-looking credit-risk metrics derived from market and financial-statement information and calibrated against observed default behavior. See [Moody's Credit Risk solutions](#) and the [Moody's Analytics EDF overview](#).

QUESTION NO: 8

Which of the following risks and reasons justify the use of scenario analysis in operational risk modeling:

- I. Risks for which no internal loss data is available
 - II. Risks that are foreseeable but have no precedent, internally or externally
 - III. Risks for which objective assessments can be made by experts
 - IV. Risks that are known to exist, but for which no reliable external or internal losses can be analyzed
 - V. Reducing the complexity of having to fit statistical models to internal and external loss data
 - VI. Managing the capital estimation process as to produce estimates in line with management's desired capital buffers.
- A. I, II and III
 - B. I, II, III and IV
 - C. V
 - D. All of the above

ANSWER: B

Explanation:

I, II, III and IV correctly identify situations in which scenario analysis is useful in operational-risk modelling. Scenario analysis is a forward-looking method that applies structured expert judgment to identify plausible loss events, assess their likelihood and severity, and evaluate the adequacy of controls. It is particularly valuable where a firm has no relevant internal loss history, where data are too sparse or unreliable to support robust statistical inference, and where emerging or extreme risks are credible even though they have not previously occurred either within the firm or externally. This is important because operational-risk loss data alone can underrepresent rare, high-severity events and new risks arising from changes in processes, technology, products, or the external environment.

The usefulness of expert assessment depends on it being objective, disciplined, and challengeable. Effective scenario exercises draw on personnel with relevant business, control, risk, and subject-matter knowledge, use clear assumptions and documented rationale, and are subject to independent review and governance. These features allow scenarios to supplement observed data rather than merely extrapolate from a limited historical sample. The Basel Committee describes scenario analysis as an important operational-risk identification and assessment tool, while the EBA's guidance addresses sound use and governance of expert-based scenario analysis. See the [Basel Committee's Principles for the Sound Management of Operational Risk](#) and the [EBA guidelines on stress testing](#).

QUESTION NO: 9

An operational loss severity distribution is estimated using 4 data points from a scenario. The management institutes additional controls to reduce the severity of the loss if the risk is realized, and as a result the estimated losses from a 1-in-10-year losses are halved. The 1-in-100 loss estimate however remains the same. What would be the impact on the 99.9th percentile capital required for this risk as a result of the improvement in controls?

- A. The capital required will decrease
- B. The capital required will stay the same
- C. The capital required will increase
- D. Can't say based on the information provided

ANSWER: C

Explanation:

The capital required will increase. A severity distribution is being recalibrated using scenario points, with the loss at the less-extreme 1-in-10-year point reduced substantially while the much more severe 1-in-100-year point is held unchanged. This increases the contrast between the middle of the distribution and its upper tail. When a distribution is fitted to preserve the unchanged extreme scenario while accommodating lower losses in the body, its implied tail becomes heavier. Extrapolation from that fitted tail to the 99.9th percentile can therefore produce a higher loss estimate, despite the control improvement reducing the 1-in-10-year scenario loss.

This is a useful scenario-analysis caution: capital is driven by very remote quantiles, so changes to lower-frequency-severity points do not necessarily translate mechanically into lower extreme-quantile capital. The result should also prompt governance challenge of the assumptions. If a control genuinely reduces loss severity, analysts should assess whether it should affect the 1-in-100-year estimate as well, rather than accepting an unchanged tail scenario without review. Sound operational-risk practice requires scenario estimates and their assumptions to be credible, internally consistent, and subject to challenge. See the Basel Committee's [Principles for the Sound Management of Operational Risk](#) and its [operational-risk regulatory framework](#).

QUESTION NO: 10

Which of the following statements is true

- I. If no loss data is available, good quality scenarios can be used to model operational risk
- II. Scenario data can be mixed with observed loss data for modeling severity and frequency estimates
- III. Severity estimates should not be created by fitting models to scenario generated loss data points alone
- IV. Scenario assessments should only be used as modifiers to ILD or ELD severity models.

- A. I
- B. I and II
- C. III and IV
- D. All statements are true

ANSWER: B

Explanation:

I and II is correct. Scenario analysis is a core operational-risk measurement technique because it provides structured expert judgement about plausible loss events, including events that are rare, emerging, or absent from an institution's historical internal loss data. Where no usable loss history exists, carefully designed, independently challenged scenarios can therefore supply the frequency and severity inputs needed to construct an operational-risk loss distribution. The quality of the scenario

process matters: it should draw on knowledgeable business and risk specialists, have clear governance, and be periodically reviewed.

Scenario information can also be integrated with observed loss experience when estimating loss frequency and severity. A bank may pool or combine scenario-derived information with internal loss data, or use formal statistical approaches that incorporate expert judgement alongside empirical observations. This is especially useful for low-frequency, high-severity tail events, for which historical observations alone may be sparse and may not represent forward-looking changes in the risk profile. The Basel operational-risk framework explicitly recognizes internal loss data and scenario analysis as complementary sources of operational-risk information. See the [Basel Committee's operational risk standards](#) and the [BIS FSI summary of operational risk](#).

QUESTION NO: 11

A bank has a loan exposure of \$20 million. The one-year probability of default is 3%, and the loss given default is 40%. Assuming the exposure at default equals the current exposure, what is the expected loss over one year?

- A. \$0.06 million
- B. \$0.24 million
- C. \$0.60 million
- D. \$8.00 million

ANSWER: B

Explanation:

\$0.24 million is correct. Expected loss is calculated as probability of default $\times$ loss given default $\times$ exposure at default. Thus, expected loss equals $0.03 \times 0.40 \times \$20 \text{ million} = \$0.24 \text{ million}$.

The full loss conditional on default is \$8 million, but that amount must be weighted by the 3% probability of default to calculate expected loss. Expected loss is generally addressed through pricing and provisioning, whereas capital is held principally against unexpected loss.

QUESTION NO: 12

The Bankers Trust Case Study is about:

- A. overexposure to the real estate market
- B. large losses at the proprietary trading desk
- C. reliance on thinly traded derivatives to hedge
- D. failure to guard its clients' best interests

ANSWER: D

Explanation:

failure to guard its clients' best interests is correct. The Bankers Trust case is a classic conduct, reputational, and legal-risk example arising from the sale of complex over-the-counter derivatives to corporate clients, notably Procter & Gamble and Gibson Greetings. The central risk-management lesson is that a financial institution must maintain appropriate client-facing controls when marketing, structuring, valuing, and explaining complex products. This includes clear disclosure of material risks, transparent valuation practices, suitable product design in light of the client's objectives and sophistication, and escalation of conflicts between sales incentives and fair client treatment.

In the widely studied disputes, concerns focused on whether the clients had received a sufficiently clear understanding of the economic exposures and potential losses embedded in leveraged derivative structures. The episode demonstrates that risk is not limited to market losses calculated by trading models: weak conduct and governance can create substantial litigation

exposure, regulatory scrutiny, loss of client confidence, and lasting damage to a firm's franchise. The SEC's litigation-release archive documents enforcement actions and related federal securities-law proceedings, while the Federal Reserve's supervision materials emphasize sound risk management and governance at banking organizations. See the [SEC Litigation Releases archive](#) and the [Federal Reserve supervision and regulation resources](#).

QUESTION NO: 13

According to the implied capital model, operational risk capital is estimated as:

- A. Operational risk capital held by similar firms, appropriately scaled
- B. Total capital less market risk capital less credit risk capital
- C. Capital implied from known risk premiums and the firm's earnings
- D. Total capital based on the capital asset pricing model

ANSWER: B

Explanation:

Total capital less market risk capital less credit risk capital is correct because the implied capital model estimates operational-risk capital as a residual. The model begins with the institution's total economic or regulatory capital requirement, then identifies the portions already attributed to market risk and credit risk using the relevant measurement approaches. The capital remaining after those two risk-capital amounts have been deducted is treated as the capital implied for operational risk. In formula form: operational-risk capital = total capital – market-risk capital – credit-risk capital. This is an indirect, top-down estimation technique: it does not require a separate loss-distribution model or direct modelling of operational-loss frequency and severity. Instead, it relies on the premise that total capital must cover the institution's material risks and that the market- and credit-risk components can be measured or otherwise assigned first. This residual approach is consistent with the historical role of operational-risk capital as the amount not explained by the better-established market- and credit-risk capital components. For background on operational-risk capital and supervisory capital frameworks, see the [Basel Committee's operational-risk standard](#) and PRMIA's [professional risk-management resources](#).

QUESTION NO: 14

Washington Mutual's acquisition of Long Beach Financial changed its business model and increased its credit loss profile because

- A. The resulting loss rate for Washington Mutual was more than 3 times higher than other mortgage lenders tracked by the FDIC
- B. The two banks focused on different markets.
- C. Long Beach Financial had losses which it hadn't realized at the time of the takeover
- D. Of a general deterioration of credit quality generally

ANSWER: B

Explanation:

The two banks focused on different markets. Before the acquisition, Washington Mutual had operated principally as a traditional thrift, with a mortgage business oriented toward conventional, relatively higher-credit-quality borrowers. Long Beach Financial, by contrast, was a specialist lender in the subprime mortgage market. Acquiring Long Beach therefore was not merely an expansion of Washington Mutual's existing business volume; it added a fundamentally different lending activity, involving borrowers with weaker credit histories and loans whose performance was more sensitive to house-price declines and economic stress.

This strategic move changed the composition of Washington Mutual's assets and its risk appetite. As Long Beach's lending model was incorporated into the wider organization, Washington Mutual expanded its participation in higher-risk mortgage

products and borrower segments. That shift provides the causal link between the acquisition, the change in business model, and the increased credit-loss profile. The Financial Crisis Inquiry Commission describes Washington Mutual's acquisition of Long Beach as its entry into subprime lending and discusses the subsequent expansion of its higher-risk mortgage activities. The FDIC's failed-bank materials also document Washington Mutual's failure in the context of mortgage-credit losses. See the [Financial Crisis Inquiry Commission final report](#) and the [FDIC's Washington Mutual failed-bank record](#).

QUESTION NO: 15

A trader deliberately enters fictitious transactions to conceal losses and avoid a breach of a trading limit. The activity is discovered through an internal reconciliation. Under the Basel II operational-risk loss-event taxonomy, this event is most appropriately classified as:

- A. Internal fraud
- B. External fraud
- C. Clients, products and business practices
- D. Execution, delivery and process management

ANSWER: A

Explanation:

Internal fraud is correct. Internal fraud includes acts intended to defraud, misappropriate property, or circumvent law, regulation, or company policy, excluding diversity and discrimination events. Deliberately recording fictitious trades to hide losses and evade limits is misconduct by an employee and falls directly within this category.

Execution, delivery and process management would apply to an unintentional processing or settlement failure. External fraud concerns losses caused by parties outside the institution. Clients, products and business practices concerns failures in professional obligations to clients or the nature and design of products.

QUESTION NO: 16

What is the day count convention used for US government bonds?

- A. Actual/360
- B. Actual/Actual
- C. Actual/365
- D. 30/360

ANSWER: B

Explanation:

Actual/Actual is the standard day-count convention for U.S. Treasury coupon bonds and notes. Under this convention, accrued interest is calculated using the actual number of calendar days that have elapsed in the relevant accrual period and the actual number of days in the applicable coupon period. Consequently, the interest fraction can differ between periods, particularly where a leap year affects the number of days. This approach aligns the accrual calculation with the precise timing of Treasury cash flows and is the market convention used when pricing, settling, and reporting accrued interest on these securities. The convention is especially important because a bond buyer generally compensates the seller for interest accrued since the prior coupon payment through settlement. U.S. Treasury regulations describe interest and payment treatment for marketable Treasury securities, while TreasuryDirect provides the Treasury's investor information and security terms. See the [Electronic Code of Federal Regulations, 31 CFR Part 356](#) and [TreasuryDirect marketable securities information](#).

QUESTION NO: 17

Which of the following best characterizes the problems that developed at Bankgesellschaft Berlin?

- A. Volume growth at the expense of margin.
- B. Excessive reliance on volatile trading income.
- C. Banking is a "for-profit" business, not a means of fulfilling political goals.
- D. A company culture where profits may justify "excesses."

ANSWER: C

Explanation:

Banking is a "for-profit" business, not a means of fulfilling political goals. This best captures the central governance and strategic problem at Bankgesellschaft Berlin. The bank was controlled by the State of Berlin and became closely involved in politically supported property-development activity. Its real-estate subsidiaries offered investors extensive rental and return guarantees in closed-end property funds, leaving the group exposed when property-market conditions and rental income failed to support those commitments. The resulting losses were therefore not simply an ordinary fluctuation in a commercially selected lending or trading portfolio; they reflected weak separation between the owner's public-policy ambitions and the bank's obligation to assess, price, limit, and manage risk on a sound commercial basis.

The episode is an important risk-governance lesson: a bank's board and senior management must preserve independent credit and investment discipline, including clear risk limits and transparent accountability, even where a public-sector shareholder has broader economic or political objectives. The European Commission's review of the restructuring and state support for Bankgesellschaft Berlin documents the scale of the intervention required after the crisis. See the [European Commission's Bankgesellschaft Berlin state-aid decision announcement](#) and the [European Commission notice on the Bankgesellschaft Berlin case](#).

QUESTION NO: 18

Under the standardized approach to determining operational risk capital, operations risk capital is equal to:

- A. a fixed percentage of the latest gross income of the bank
- B. a varying percentage, determined by the national regulator, of the gross revenue of each of the bank's business lines
- C. 15% of the average gross income (considering only the positive years) of the past three years
- D. a fixed percentage (different for each business line) of the gross income of the eight specified business lines, averaged over three years

ANSWER: D

Explanation:

The correct answer is *a fixed percentage (different for each business line) of the gross income of the eight specified business lines, averaged over three years*. Under the Basel II Standardised Approach for operational risk, a bank maps its activities into eight prescribed business lines: corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management, and retail brokerage. For each business line, gross income is multiplied by the applicable Basel-defined beta factor. These beta factors are fixed percentages intended to represent the industry-wide relationship between operational-risk losses and gross income for that line of business. The resulting capital charges are aggregated for each year, and the bank's operational-risk capital requirement is based on the average of the annual charges over the previous three years. Thus, the approach is standardized in both its required business-line structure and its assigned factors, while still recognizing that operational-risk exposure differs by type of banking activity. The Basel Committee describes this calculation and the applicable beta factors in its [International Convergence of Capital Measurement and Capital Standards](#). The broader Basel framework and its operational-risk standards are available from the [Bank for International Settlements Basel framework page](#).

QUESTION NO: 19

The Altman credit risk score considers:

- A. A historical database of the firms that have defaulted
- B. A quadratic approximation of the credit risk based on underlying risk factors
- C. A combination of accounting measures and market values
- D. A historical database of the firms that have survived

ANSWER: C

Explanation:

“A combination of accounting measures and market values” is correct because the original Altman Z-score is a multivariate bankruptcy-prediction model built from financial ratios that draw primarily on a firm’s financial statements while also incorporating a market-based input. Its five classic components are working capital divided by total assets, retained earnings divided by total assets, earnings before interest and taxes divided by total assets, the market value of equity divided by the book value of total liabilities, and sales divided by total assets. The first, second, third, and fifth measures use accounting information reported in the balance sheet and income statement. The market-value-of-equity-to-liabilities measure introduces information from capital markets, reflecting how investors value the firm’s equity relative to its debt burden. Accordingly, the score does not rely exclusively on either accounting data or market data; it deliberately combines both types of information into a single discriminant score. This design was central to Edward Altman’s original study of corporate bankruptcy prediction, which demonstrated that a set of financial ratios could distinguish bankrupt from non-bankrupt companies. The original research is available through the [Journal of Finance](#); background material and model resources are also provided by [NYU Stern](#).

QUESTION NO: 20

[According to the PRMIA study guide for Exam 1, Simple Exotics and Convertible Bonds have been excluded from the syllabus. You may choose to ignore this question. It appears here solely because the Handbook continues to have these chapters.]

The use of numerical pricing methods over analytical methods for valuing exotic options is resorted to allow for which of the following reasons:

- I. Efficient valuation
 - II. Allowing for stochastic volatility
 - III. Accommodating discontinuous asset prices
 - IV. Allowing for complex payoffs
- A. I, II and III
 - B. II, III and IV
 - C. I, II, III and IV
 - D. I

ANSWER: B

Explanation:

II, III and IV is correct because numerical valuation methods are designed to handle option features and market dynamics for which a closed-form analytical solution is unavailable or impractical. Methods such as binomial or trinomial trees, finite-difference techniques, and Monte Carlo simulation can model a volatility process that changes randomly over time, rather than requiring the constant-volatility assumption used in the basic Black-Scholes framework. They can also represent discontinuous price behavior, including jumps, through an appropriately specified price process or simulation framework.

Most importantly for exotic derivatives, numerical methods can apply contractual payoff logic directly at maturity and, where necessary, at intermediate dates. This makes them suitable for path-dependent, barrier, digital, callable, and other structurally complex payoffs. Numerical methods therefore provide modelling flexibility: the valuation engine can incorporate the relevant stochastic process, exercise conditions, monitoring rules, and payoff definition. Their purpose is not inherently more efficient computation than an available analytical formula; rather, they are used when flexibility and the ability to capture realistic dynamics or complex contractual terms are needed. See the [PRMIA PRM Certification](#) overview and the [CFA Institute derivative markets and instruments reading](#) for background on derivative valuation and option structures.

QUESTION NO: 21

Metallgesellschaft's retail contracts were

- A. unhedged
- B. hedged using exchange-traded futures with longer maturities than the retail contracts
- C. hedged using exchange-traded futures with shorter maturities than the retail contracts
- D. fully hedged using exchange-traded futures of the same maturities as the retail contracts

ANSWER: C

Explanation:

Metallgesellschaft's retail customers entered into long-term, fixed-price petroleum supply contracts, under which the firm committed to deliver oil products over periods extending much further into the future than the exchange futures used for its hedge. To manage the resulting exposure to rising oil prices, its U.S. subsidiary used a "stack-and-roll" strategy: it bought substantial positions in short-dated, exchange-traded energy futures and repeatedly rolled those positions forward as contracts approached expiration. Thus, the futures maturities were shorter than the maturities of the underlying retail delivery commitments. This approach was intended to create a synthetic long-term hedge, but it also introduced substantial liquidity and cash-flow risk. In particular, adverse short-run movements in futures prices could produce large variation-margin calls before the longer-term physical contracts generated offsetting cash flows. The episode is a classic risk-management example because it distinguishes economic exposure over the life of a contract from the timing of cash flows and margin requirements generated by a rolling futures hedge. For a discussion of futures hedging, contract expiration, and daily margining, see the [CME Group's overview of futures expiration](#) and the [CME Group's explanation of futures margins](#).

QUESTION NO: 22

Which of the following was NOT a factor in the Long Term Capital Management case?

- A. Inadequate separation of front and back offices
- B. Model risk
- C. Changes/breakdowns in historical correlations
- D. Unwinding of liquid positions at the beginning of major losses

ANSWER: A

Explanation:

Inadequate separation of front and back offices was not a material factor in the Long-Term Capital Management (LTCM) collapse. The 1998 episode is principally a market-risk, liquidity-risk, leverage, and model-risk case study. LTCM's convergence strategies relied on historical relationships between securities prices and on the expectation that apparent mispricings would converge. Following Russia's debt default and devaluation, market conditions became exceptionally stressed: investors fled to liquidity and quality, spreads moved sharply, and relationships that had been relatively stable behaved differently. Because the fund had very large, leveraged exposures, adverse price movements and increasing collateral demands quickly amplified the pressure to reduce positions. Its concentrated, difficult-to-exit positions also meant that market liquidity was central to the severity of the crisis and to the Federal Reserve Bank of New York-facilitated private-

sector recapitalization. A failure to segregate trading activity from operational processing and settlement functions is an operational-control issue, but it is not identified as a causal feature of LTCM's near-failure in the major contemporary analyses. The Federal Reserve's historical account describes the market disruption and leveraged-position dynamics, while the GAO's review documents the risk-management and market conditions surrounding the event. See [Federal Reserve History: LTCM and the Russian Financial Crisis](#) and [GAO: Long-Term Capital Management](#).

QUESTION NO: 23

The Risk Management Infrastructure of an organization must:

- I. To the extent possible, avoid silos of control and oversight
 - II. Have budgets set by the business unit leaders
 - III. Actively provide ongoing professional development for risk management staff and require them to be committed to standards of best practice, conduct and ethics in their work
 - IV. Provide general risk management and related corporate governance training for employees of the organization as a Whole
- A. I only
- B. I, III and IV only
- C. I and III only
- D. All of these are expected of the Risk Management Infrastructure

ANSWER: B

Explanation:

I, III and IV only is correct because a sound risk management infrastructure is enterprise-wide, independent-minded, and embedded in the organization's culture. Avoiding separate control and oversight silos supports a consolidated view of material risks, clearer escalation, and coordinated decision-making across business lines and risk types. A resilient framework also depends on capable risk professionals: ongoing development helps staff maintain the technical, regulatory, and judgment skills needed to identify, measure, monitor, and communicate risk effectively. Their commitment to professional standards, conduct, and ethics is essential because risk reporting and challenge must remain credible and objective.

Risk management is not solely the responsibility of a dedicated risk function. General risk-management and corporate-governance training across the workforce promotes consistent awareness of risk appetite, controls, escalation routes, and individual accountability. This supports a healthy risk culture in which employees understand how their activities affect the organization's overall risk profile. The Basel Committee emphasizes the importance of an institution-wide risk culture, effective risk governance, and suitably qualified independent risk-management personnel; see its [Corporate governance principles for banks](#). PRMIA likewise identifies governance, ethics, and risk-management practice as core areas of the profession; see [PRMIA's PRM Certification](#).

QUESTION NO: 24

The problems at Bankers Trust can best be characterized as failures related to:

- A. Market Risk
- B. Credit Risk
- C. Operational and Regulatory Compliance Risk
- D. All of the Above

ANSWER: C

Explanation:

Operational and Regulatory Compliance Risk is correct because the Bankers Trust derivatives controversy centered principally on deficient sales practices, inadequate disclosure and communication, and failures in internal controls surrounding complex derivative transactions. In the well-known disputes with corporate clients during the mid-1990s, the issue was not simply that market prices moved adversely or that a borrower failed to repay. Rather, clients alleged that they had not been given a clear understanding of the products' structure, embedded leverage, potential losses, and risk exposures. Recorded conversations and the subsequent litigation made conduct, documentation, suitability, transparency, and supervisory control central concerns. These are hallmarks of operational risk: loss or harm arising from inadequate or failed people, processes, systems, or external events. They also involve regulatory-compliance risk because financial institutions must maintain appropriate controls and conduct standards when designing, marketing, documenting, and overseeing products for clients. The episode is therefore commonly used in risk-management discussions as a governance and control failure associated with derivatives activity, rather than as a pure trading-risk event. The Basel Committee's operational-risk framework explicitly includes legal risk within the scope of operational risk; see the [Basel Committee's Principles for the Sound Management of Operational Risk](#). PRMIA likewise identifies operational risk as a core risk-management discipline in its [Associate PRM certification overview](#).

QUESTION NO: 25

In terms of notional values traded, which of the following represents the largest share of total traded futures and options globally?

- A. interest rate products
- B. commodities
- C. foreign exchange futures and options
- D. equity futures and options

ANSWER: D**Explanation:**

equity futures and options is correct. In the market-composition convention used for this question, equity-linked derivatives—including equity-index futures, equity-index options, and options on individual equities—represent the largest portion of global exchange-traded futures and options activity when measured by the aggregate notional value traded. These instruments support a broad range of trading and risk-management uses: investors hedge equity-market exposure, asset managers adjust portfolio beta efficiently, and market participants express views on broad indices or individual shares. Their extensive use across major derivatives exchanges produces very large aggregate notional turnover. Notional value is a measure of the underlying exposure referenced by a contract, rather than the premium paid for an option or the margin posted for a futures position; it is therefore the appropriate basis for comparing the scale of derivative-market activity in this question. The World Federation of Exchanges publishes market statistics and derivatives-market coverage that provide context on the importance and breadth of equity-derivatives trading worldwide. PRMIA's certification program also expects candidates to distinguish derivative-market instruments and the measures used to describe their scale. See the [World Federation of Exchanges statistics resources](#) and [PRMIA's PRM certification information](#).

QUESTION NO: 26

When considering the performance of Northern Rock within its peer group of banks, which of the following is not correct?

- A. Only a few months previously it had reported record profits.
- B. The quality of its' assets was never in question.
- C. For many years it was regarded as a star-performer in the financial markets.
- D. Its' loan loss record was poor by industry standards.

ANSWER: D

Explanation:

"Its loan loss record was poor by industry standards." is the statement that is not correct. Before its liquidity crisis in 2007, Northern Rock was generally viewed as a highly successful and rapidly growing mortgage lender. Its reported credit performance was strong: the bank concentrated largely on residential mortgages, and its arrears and impairment experience had historically been low relative to the risks that ultimately destabilised it. The core vulnerability was not a demonstrated history of poor loan-loss performance; it was the funding model used to support rapid balance-sheet growth. Northern Rock relied heavily on wholesale money markets and securitisation rather than a broad base of customer deposits. When those markets became severely impaired during the global credit disruption, the bank could no longer refinance itself normally, producing an acute liquidity crisis and the well-known retail depositor run. This distinction between credit risk and liquidity/funding risk is central to the Northern Rock case study: an institution can report sound asset quality and profits while still being exposed to a severe funding shock. The UK National Audit Office describes the bank's rapid growth and its dependence on wholesale funding in its account of the intervention and nationalisation; see [National Audit Office: The Nationalisation of Northern Rock](#). The Bank of England also discusses the market-liquidity stress affecting bank funding in its [October 2007 Financial Stability Report](#).

QUESTION NO: 27

Which of the following best characterize the problems that developed at Bankers Trust?

- A. Volume growth at the expense of margin
- B. Excessive reliance on volatile and sophisticated derivatives
- C. A failure to try to protect their clients' interests
- D. Over exposure to the property market

ANSWER: C**Explanation:**

A failure to try to protect their clients' interests best characterizes the central problem highlighted by the Bankers Trust derivatives controversies of the mid-1990s. The issue was not merely that derivatives were complex; it was the firm's conduct in marketing, structuring, and managing highly leveraged over-the-counter transactions for clients that did not necessarily understand their embedded risks. Recorded conversations and the subsequent disputes involving corporate counterparties brought attention to a sales culture in which transaction profitability could take precedence over clear communication of pricing, leverage, valuation, and potential losses. This is fundamentally a client-interest and conduct-risk failure: a dealer should ensure that product information, risk disclosures, suitability processes, and ongoing communications enable a client to make an informed decision. In the litigation arising from the Procter & Gamble relationship, the court record describes the parties' derivatives transactions and the representations at issue; see [Procter & Gamble Co. v. Bankers Trust Co.](#). More broadly, the Basel Committee emphasizes that sound compliance and risk-management arrangements must promote integrity and address conduct that can damage customers and a bank's reputation; see [Basel Committee compliance principles](#).

QUESTION NO: 28

What is the maximum value for $f(x) = 8 - (x+3)(x-3)$?

- A. 8
- B. -1
- C. 17
- D. None of these

ANSWER: C**Explanation:**

The maximum value is **17**. First, use the difference-of-squares identity: $(x + 3)(x - 3) = x^2 - 9$. Substituting this into the function gives $f(x) = 8 - (x^2 - 9) = 17 - x^2$. Because x^2 is always nonnegative for every real value of x , subtracting x^2 from 17 can never produce a value greater than 17. The largest possible value of the expression occurs when x^2 is zero, which happens at $x = 0$. Evaluating the function at that point gives $f(0) = 17 - 0 = 17$. Equivalently, the graph is a downward-opening parabola because the coefficient of x^2 is negative, so its vertex represents the global maximum. Its vertex is located at $x = 0$ and has a y -value of 17. This use of completing or recognizing a quadratic form is consistent with standard descriptions of quadratic functions and parabolic graphs in [OpenStax College Algebra](#) and the difference-of-squares identity described by [Wikipedia](#).

QUESTION NO: 29

If the CHF/USD spot and 3 month (91 days) forward rates are 1.1763 and 1.1652, what is the annualized forward premium or discount?

- A. 3.73% premium
- B. 0.94% premium
- C. 0.94% discount
- D. 3.785% discount

ANSWER: D

Explanation:

The correct result is **3.785% discount**. The annualized forward premium or discount is calculated by taking the proportional difference between the forward exchange rate and the spot exchange rate, then scaling that return to a one-year period: $((\text{Forward} - \text{Spot}) / \text{Spot}) \times (365 / \text{days})$. Substituting the quoted rates gives: $((1.1652 - 1.1763) / 1.1763) \times (365 / 91) = -0.03785$, or approximately -3.785% per annum. The negative sign is meaningful: the 91-day forward rate is below the current spot rate. Therefore, the currency represented by the base currency in the CHF/USD quotation is trading at a forward discount relative to the quoted currency. Expressing the result as a discount rather than retaining the negative sign is standard market terminology. Annualization is necessary because the observed forward differential covers only 91 days, whereas the question asks for an annualized premium or discount. This calculation is consistent with standard foreign-exchange forward-rate conventions and the covered-interest-parity framework, under which forward rates reflect the relative interest-rate effect over the contract term. See the CFA Institute's discussion of currency exchange rates and forwards at [CFA Institute](#) and the forward-premium definition at [Investopedia](#).

QUESTION NO: 30

Let $f(x) = c$ for x in $[0,4]$ and 0 for other values of x .

What is the value of the constant c that makes $f(x)$ a probability density function; and what if $f(x) = cx$ for x in $[0,4]$?

- A. 1/4 and 1/7
- B. 1/7 and 1/9
- C. 1/4 and 1/6
- D. None of the above

ANSWER: D

Explanation:

None of the above is correct because a probability density function must have total area equal to one over its support. For the constant density on the interval from zero to four, normalization requires $\int_0^4 c \, dx = 4c = 1$, so $(c = 1/4)$. For the density $(f(x) = cx)$ on the same interval, normalization instead requires $\int_0^4 cx \, dx = c[x^2/2]_0^4 = 8c = 1$. Thus, the required constant is $(c = 1/8)$. The ordered pair of constants is therefore $(1/4)$ and $(1/8)$, respectively. Since that pair does

not appear among the listed numerical choices, “None of the above” is the single correct response. This application of integration reflects the defining normalization condition for continuous probability distributions: probability over the full possible range must equal one. See the discussion of continuous probability distributions and density normalization in [OpenStax Introductory Statistics](#) and the probability-density-function definition in [NIST/SEMATECH e-Handbook](#).

QUESTION NO: 31

Which loss event type is the failure to timely deliver collateral classified as under the Basel II framework?

- A. Clients, products and business practices
- B. External fraud
- C. Information security
- D. Execution, Delivery & Process Management

ANSWER: D

Explanation:

Failure to timely deliver collateral is classified as **Execution, Delivery & Process Management** in the Basel II operational-risk loss-event taxonomy. This category covers losses arising from problems in transaction processing, settlement, delivery, and the management of related operational workflows. Collateral delivery is a time-sensitive post-trade activity: an institution must calculate the required collateral, issue or receive the margin call, complete approvals and instructions, and transfer eligible assets or cash within the agreed deadline. A breakdown at any point in that process can create an operational loss, such as interest or funding costs, penalties, replacement costs, disputes, or counterparty exposure. Basel's detailed loss-event-type examples specifically place the failure to meet collateral-management obligations, including timely delivery of collateral, within this execution and delivery category. The classification is based on the nature of the operational process that failed, rather than on the financial instrument or client involved. See the Basel Committee's [International Convergence of Capital Measurement and Capital Standards](#) and the Basel Framework's [operational-risk loss-event classification](#).