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Operational Risk Manager (ORM) Exam

PRMIA 8010

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QUESTION NO: 1

Which of the following is true in relation to the application of Extreme Value Theory when applied to operational risk measurement?

I. EVT focuses on extreme losses that are generally not covered by standard distribution assumptions

II. EVT considers the distribution of losses in the tails

III. The Peaks-over-thresholds (POT) and the generalized Pareto distributions are used to model extreme value distributions

IV. EVT is concerned with average losses beyond a given level of confidence

A. I and IV

B. II and III

C. I, II and III

D. I, II and IV

ANSWER: C

Explanation:

The correct statement set is *I, II and III*. Extreme Value Theory (EVT) provides a statistical framework specifically for modelling rare, severe observations in the tail of a loss distribution. This makes it useful in operational risk, where firms must assess infrequent but potentially very large losses that may not be represented reliably by modelling the full body of loss data using conventional distributional assumptions. EVT therefore concentrates on the probabilistic behaviour of tail losses rather than typical or central loss outcomes.

A principal EVT implementation is the peaks-over-threshold (POT) approach. Under the Pickands–Balkema–de Haan theorem, loss excesses above a sufficiently high threshold can be approximated with a generalized Pareto distribution (GPD). A risk manager can fit a GPD to appropriately selected threshold exceedances and use the fitted tail to estimate high quantiles relevant to extreme-loss capital measurement. The Basel Committee's operational-risk guidance recognizes that a bank's loss-distribution approach should address tail risk and that its methodology must be robust for estimating high-confidence loss measures. Further technical background on the POT/GPD result is available from Statlect's peaks-over-threshold method overview and in the Basel Committee's operational-risk standard.

QUESTION NO: 2

Which of the following belong to the family of generalized extreme value distributions:

I. Frechet

II. Gumbel

III. Weibull

IV. Exponential

A. IV

B. I, II and III

C. II and III

D. All of the above

ANSWER: B

Explanation:

The correct answer is *I, II and III*. The generalized extreme value (GEV) family is the limiting distributional family for suitably normalized maxima of independent, identically distributed observations under broad conditions. It unifies the three classical extreme-value types through its shape parameter, commonly denoted ξ. A positive ξ produces the Fréchet type, characterized by a heavy, unbounded upper tail. A zero ξ limit produces the Gumbel type, whose tail decays exponentially. A negative ξ produces the Weibull type, which has a finite upper endpoint. Thus, Fréchet, Gumbel, and Weibull are precisely the three members—or types—of the GEV family. In operational and financial risk applications, the GEV distribution is especially relevant to block-maxima methods, where maximum losses or other extremes are modeled over fixed time blocks. The related peaks-over-threshold framework instead commonly uses the generalized Pareto distribution for threshold exceedances. The theoretical basis for the GEV family is the extremal-types theorem, which parallels the central limit theorem but concerns sample maxima rather than sample means. See the NIST Extreme Value Type I, II, and III distribution reference and the Generalized extreme value distribution overview.

QUESTION NO: 3

Which of the following credit risk models includes a consideration of macro economic variables such as unemployment, balance of payments etc to assess credit risk?

A. KMV's EDF based approach

B. The CreditMetrics approach

C. The actuarial approach

D. CreditPortfolio View

ANSWER: D

Explanation:

CreditPortfolio View is correct because it explicitly links credit-risk drivers to the macroeconomic environment and the stage of the business cycle. The model estimates how changes in economic factors—such as unemployment, gross domestic product growth, interest rates, inflation, exchange rates, and external-sector conditions—affect obligors' probabilities of default and rating-migration behavior. It then translates macroeconomic scenarios into a portfolio loss distribution, allowing risk managers to assess how a broad economic downturn or other systemic development may alter expected and unexpected credit losses. This makes the framework particularly useful for portfolio stress testing, scenario analysis, and measuring correlated deterioration in borrower creditworthiness across sectors and regions. The central insight is that defaults and migrations are not wholly independent firm-specific events: they tend to move together when common economic conditions weaken. This macro-factor and business-cycle orientation is a defining feature of CreditPortfolio View and is consistent with the broader credit-risk modeling literature on systematic default risk. See the discussion of portfolio credit-risk modeling and systematic factors in Wilson's Portfolio Credit Risk paper and the Bank for International Settlements' work on credit risk and macroeconomic conditions.

QUESTION NO: 4

Which of the following is a cause ofmodel risk in risk management?

A. Programming errors

B. Misspecification of the model

C. Incorrect parameter estimation

D. All of the above

ANSWER: D

Explanation:

All of the above is correct because model risk can arise at multiple points in a model's life cycle, including its design, calibration, implementation, and use. Programming errors can cause a correctly designed conceptual model to produce

incorrect outputs when its logic is translated into code, spreadsheets, or production systems. Misspecification of the model is a source of risk when the model's assumptions, structure, distributional choices, or relationships do not adequately represent the underlying risk being measured. Incorrect parameter estimation creates model risk because estimated inputs such as correlations, volatilities, default probabilities, or loss severities may be inaccurate, unstable, or based on insufficient or unrepresentative data. These sources can materially affect risk estimates, capital calculations, pricing, and management decisions. Sound model risk management therefore requires effective validation, independent review, data-quality controls, outcome analysis, and governance throughout the model life cycle. The U.S. Federal Reserve's model-risk guidance identifies incorrect implementation, flawed assumptions, and poor-quality inputs as important model-risk concerns; see Supervisory Guidance on Model Risk Management (SR 11-7). The Basel Committee also emphasizes robust model governance and validation in Reducing variation in credit risk-weighted assets.

QUESTION NO: 5

Which of the following statements are true:

I. The three pillars under Basel II are market risk, credit risk and operational risk.

II. Basel II is an improvement over Basel I by increasing the risk sensitivity of the minimum capital requirements.

III. Basel II encourages disclosure of capital levels and risks

A. III only

B. I only

C. I and II

D. II and III

E. The three pillars under Basel II are market risk, credit risk and operational risk.
II. Basel II is an improvement over Basel I by increasing the risk sensitivity of the minimum capital requirements.
III. Basel II encourages disclosure of capital levels and risks

ANSWER: D

Explanation:

"II and III" is correct. A central objective of the Basel II framework was to make regulatory capital more closely reflect the actual risk profile of a bank. It did this by offering more risk-sensitive methods for calculating capital requirements, particularly for credit risk and operational risk, rather than relying solely on the comparatively broad risk-weight categories used under the earlier framework. This helps align the minimum amount of required capital more closely with the nature and quality of a bank's exposures, risk-management practices, and counterparties.

Basel II also made public disclosure an explicit component of prudential regulation through its market-discipline pillar. Banks are expected to disclose meaningful information about their capital structure, capital adequacy, risk exposures, and risk-assessment processes. Such disclosure enables market participants to assess an institution's financial condition and promotes prudent risk management through transparency. The Basel Committee's overview of the framework identifies risk-sensitive capital requirements and market discipline as key features; see the Basel II: International Convergence of Capital Measurement and Capital Standards and the Basel Framework.

QUESTION NO: 6 - (SIMULATION)

Whichof the following statements are true in relation to Historical Simulation VaR?

I. Historical Simulation VaR assumes returns are normally distributed but have fat tails

II. It uses full revaluation, as opposed to delta or delta-gamma approximations

III. Acorrelation matrix is constructed using historical scenarios

IV. It particularly suits new products that may not have a long time series of historical data available

ANSWER: See the explanation for the answer

Explanation:

Correct answer: II only.

I — False: Historical Simulation VaR makes no parametric distributional assumption, including normality or a specified fat-tailed distribution. It uses the empirically observed historical changes as its distribution.
II — True: Under standard Historical Simulation VaR, the portfolio is repriced (fully revalued) under each historical market scenario to obtain a distribution of hypothetical P&L outcomes.
III — False: A correlation matrix is not required. The historical joint movements of risk factors inherently preserve observed dependencies.
IV — False: Historical simulation requires sufficient relevant historical observations. A new product or risk factor with little or no usable history is therefore a limitation, not a particular strength.

QUESTION NO: 7

Economic capital under the Earnings Volatility approach is calculated as:

A. Expected earnings/Specific risk premium for the firm

B. [Expected earnings less Earnings under the worst case scenario at a given confidence level]/Required rate of return for the firm

C. Earnings under the worst case scenario at a given confidence level/Required rate of return for the firm

D. Expected earnings/Required rate of return for the firm

ANSWER: B

Explanation:

The correct calculation is *[Expected earnings less Earnings under the worst case scenario at a given confidence level]/Required rate of return for the firm*. Under the Earnings Volatility approach, economic capital is a top-down measure of the amount of capital needed to absorb an adverse, statistically defined reduction in earnings. The starting point is earnings-at-risk: the difference between expected earnings and earnings in a sufficiently adverse scenario at the selected confidence level. This difference represents the potential fall in earnings that the institution wishes to protect against over its chosen horizon.

That earnings shortfall is then capitalized using the firm's required rate of return. Dividing the earnings-at-risk amount by the required return converts an annual earnings impact into the stock of capital that would be necessary to support or offset it. For example, a larger potential earnings decline, a higher confidence level, or a lower required return produces a larger economic-capital requirement. This reflects the economic-capital objective of relating capital adequacy to the firm's internally assessed risk profile and its capacity to withstand adverse outcomes. The Federal Reserve discusses economic-capital approaches as internally developed measures of capital needed to cover risks in SR 99-18; see also the Basel Committee's discussion of internal capital adequacy assessment in its ICAAP guidance.

QUESTION NO: 8

Which of the following best describes a 'break clause ?

A. A break clause gives either party to a transaction the right to terminate the transaction at market price at future date(s)

B. A break clausedetermines the process by which amounts due on early termination will be determined

C. A break clause describes rights and obligations when the derivative contract is broken

D. A break clause sets out the conditions under which the transaction will be terminated upon non-compliance with the ISDA MA

ANSWER: A

Explanation:

A break clause gives either party to a transaction the right to terminate the transaction at market price at future date(s) because it creates a contractual right to end an otherwise continuing transaction on specified future exercise dates. In an OTC derivatives context, the clause is generally negotiated in the trade confirmation and identifies who may exercise the right, the applicable dates, notice requirements, and the valuation or settlement mechanics. When exercised, the transaction is terminated and its economic value is determined using the agreed market-based methodology, so that the terminating party receives or pays the resulting close-out amount. This feature can materially reduce the remaining maturity and counterparty-credit exposure of a transaction, particularly where the break date occurs before the contractual final maturity. It is not a default remedy: it is an elective termination right that may be exercised in accordance with the agreed contractual terms. The ISDA Master Agreement framework supplies the general legal architecture for derivatives transactions and termination provisions, while trade-specific terms—including optional termination dates—are documented in confirmations. See ISDA's 2002 ISDA Master Agreement resources and the Bank for International Settlements discussion of counterparty credit risk in OTC derivatives.

QUESTION NO: 9

There are two bonds in a portfolio, each with a market value of $50m. The probability of default of the two bonds over a one year horizon are 0.03 and 0.08 respectively. If the default correlation is zero, what is the one year expected loss on this portfolio?

A. $11m

B. $5.26m

C. $5.5m

D. $1.38m

ANSWER: C

Explanation:

The correct answer is **$5.5m**. With no recovery rate or loss-given-default assumption supplied, the conventional exam assumption is that default produces a loss equal to the full $50m market value of each bond. Expected loss is calculated as the sum of each exposure's probability-weighted loss: for the first bond, $50m × 0.03 = $1.5m; for the second bond, $50m × 0.08 = $4.0m. The portfolio's one-year expected loss is therefore $1.5m + $4.0m = $5.5m. Although zero default correlation implies independent defaults in this two-name setting, dependence is not needed to calculate the expected loss of the portfolio. Expected loss is linear: it equals the sum of the individual expected losses regardless of the dependence structure between default events. Default correlation instead affects the distribution of portfolio losses—particularly the likelihood of joint defaults and therefore unexpected loss, tail risk, and economic-capital measures. This reflects the standard credit-risk expected-loss framework, in which expected loss is exposure at default multiplied by probability of default and loss given default. See the Basel Framework's IRB credit-risk treatment and the Federal Reserve overview of credit risk.

QUESTION NO: 10

The principle underlying the contingent claims approach to measuring credit risk equates the cost of eliminating credit risk for a firm to be equal to:

A. the cost of a call on the firm's assets with a strike equal to the value of the debt

B. the value of a put on the firm's assets with a strike equal to the value of the debt

C. the probability of the firm's assets falling below the critical value for default

D. the market valuation of the firm's equity less the value of its liabilities

ANSWER: B

Explanation:

The value of a put on the firm's assets with a strike equal to the value of the debt is correct because the contingent claims approach models a firm's debt and equity as claims on the total value of its assets. At the debt's maturity, debtholders are entitled to the promised debt amount, but repayment is limited by the value of firm assets. A put option on those assets, with an exercise price equal to the promised debt repayment, supplies exactly the shortfall when asset value is below the debt face value. Consequently, holding risky debt together with this put produces a payoff equivalent to risk-free debt: when assets exceed the debt obligation, the debt is repaid in full; when they do not, the put compensates for the deficiency. The put premium therefore represents the market-implied cost of insuring against the firm's default risk, and is a direct credit-risk measure under the structural, contingent-claims framework. This relationship follows the Merton model of corporate liabilities, in which equity is also represented as a call option on firm assets with a strike equal to debt obligations. See Risk.net's definition of the Merton model and the original framework in Merton, "On the Pricing of Corporate Debt".

QUESTION NO: 11

A bank has identified a critical outsourced cloud service that supports customer payment processing. Which of the following is the most appropriate operational-risk management action?

A. Assess the provider's resilience and controls, define service requirements, and maintain contingency arrangements

B. Transfer full accountability for payment-processing risk to the cloud provider

C. Rely on the provider's annual financial statements as the sole control assessment

D. Exclude the service from business continuity testing because it is externally hosted

ANSWER: A

Explanation:

Assess the provider's resilience and controls, define service requirements, and maintain contingency arrangements is correct. Outsourcing can transfer performance of an activity to a third party, but it does not transfer the bank's accountability for the associated operational risk. The bank should perform due diligence before engagement, establish contractual requirements, monitor service performance and control effectiveness, manage concentration and exit risk, and ensure that it can continue critical operations or transition services if the provider fails.

Critical third-party arrangements should be incorporated into business continuity, operational resilience, incident management, and testing programmes. Reliance on a provider's own assurances without independent assessment and ongoing oversight is insufficient. The Basel Committee's Principles for Operational Resilience state that banks should manage risks arising from outsourcing and other third-party dependencies, particularly where they support critical operations.

QUESTION NO: 12

A stock that follows the Weiner process has its future price determined by:

A. its current price, expected return and standard deviation

B. its standard deviation and past technical movements

C. its expected return and standard deviation

D. its expected return alone

ANSWER: A

Explanation:

"its current price, expected return and standard deviation" is correct. The conventional spelling is *Wiener* process. In the arithmetic Brownian-motion representation, a stock-price change over a time interval is modeled as a deterministic drift component plus a random shock: $dS = \mu dt + \sigma dW$. Here, μ is the expected return (drift), σ is the standard deviation or volatility, and dW is the random increment of a Wiener process. Consequently, the future price is obtained by applying that modeled change to the current price; over time t, this is commonly written as $S(t) = S(0) + \mu t + \sigma W(t)$. The current price

therefore supplies the starting level, expected return determines the average directional change, and standard deviation determines the scale of uncertainty around that expected change. This framework captures the key operational distinction between an expected movement and the realized, random future outcome. A Wiener process has independent normally distributed increments whose variance grows with elapsed time, which is why volatility is an essential input to the future-price distribution. See the definition and properties of a Wiener process at Wiener process and an overview of Brownian-motion-based stock-price modeling at Geometric Brownian Motion.

QUESTION NO: 13

Which of the following statements is true:

I. Expected credit losses are charged to the unit's P&L while unexpected losses hit risk capital reserves.

II. Credit portfolio loss distributions are symmetrical

III. For a bank holding $10m in face of a defaulted debt that it acquired for $2m, the bank's legal claim in the bankruptcy court will be $10m.

IV. Thelegal claim in bankruptcy court for an over the counter derivatives contract will be the notional value of the contract.

A. I and III

B. I, II and IV

C. III and IV

D. II and IV

ANSWER: A

Explanation:

I and III is correct. Expected credit loss is the average loss anticipated over a defined horizon from normal lending activity. It is treated as a cost of doing business: banks incorporate it into pricing and recognize it through profit-and-loss charges, including loan-loss provisions or expected-credit-loss allowances. Unexpected loss represents adverse variation around that expected level and is the component for which a bank holds risk capital, subject to its overall capital framework. This distinction between expected loss provisioning and capital for unexpected loss is a core feature of the Basel credit-risk framework; see the Basel Committee's IRB framework.

A creditor's bankruptcy claim on defaulted debt is generally based on the amount legally owed under the debt instrument, rather than the price paid by the current holder in a secondary-market purchase. Therefore, if the acquired debt has a $10 million face claim, the holder files a claim for that contractual amount, subject to applicable adjustments such as payments already received, enforceable defenses, or bankruptcy-law limitations. The acquisition price affects the purchaser's investment return, not the underlying debtor obligation. In the United States, the governing framework for allowance and amount of claims is set out in 11 U.S.C. § 502.

QUESTION NO: 14

Which of the following statements are true:

I. Credit VaR often assumes a one year time horizon, as opposed to a shorter time horizon for market risk as credit activities generally span a longer time period.

II. Credit losses in the banking book should be assessed on the basis of mark-to-market mode as opposed to the default-only mode.

III. The confidence level used in the calculation of credit capital is high when the objective is to maintain a high credit rating for the institution.

IV. Credit capital calculations for securities with liquid markets and held for proprietary positions should be based on marking positions to market.

A. I and III

B. I, III and IV

C. I and II

D. II and III

E. Credit VaR often assumes a one year time horizon, as opposed to a shorter time horizon for market risk as credit activities generally span a longer time period.
II. Credit losses in the banking book should be assessed on the basis of mark-to-market mode as opposed to the default-only mode.
III. The confidence level used in the calculation of credit capital is high when the objective is to maintain a high credit rating for the institution.
IV. Credit capital calculations for securities with liquid markets and held for proprietary positions should be based on marking positions to market.

ANSWER: B

Explanation:

I, III and IV is correct. Credit-risk capital models commonly use a one-year horizon because credit quality and default risk develop over longer periods than the short holding periods traditionally used in market-risk measures. A one-year horizon is also consistent with the Basel internal-ratings-based framework's capital horizon and with the annual perspective generally applied to credit loss and solvency assessment. The Basel framework describes risk-weight functions and maturity treatment for credit exposures in its credit risk standard.

The confidence level used for credit capital should be particularly high where the institution seeks to support a strong external credit rating. Credit capital is intended to cover extreme, unexpected loss outcomes, so a higher target rating requires a more remote probability of insolvency and therefore a higher loss percentile. For example, the Basel IRB framework uses a 99.9% confidence level for unexpected credit losses over a one-year horizon, as set out in the Basel explanatory note on the IRB risk-weight functions.

For liquid securities held in proprietary or trading positions, credit-capital measurement should reflect changes in market value caused by both default and credit-spread or rating migration effects. Marking these positions to market therefore captures the economically relevant credit-risk loss over the measurement horizon.

QUESTION NO: 15

Which of the following steps are required for computing the aggregate distribution for a UoM for operational risk once loss frequency and severity curves have been estimated:

I. Simulate number of losses based on the frequency distribution

II. Simulate the dollar value of the losses from the severity distribution

III. Simulate random number from the copula used to model dependence between the UoMs

IV. Compute dependent losses from aggregate distribution curves

A. I and II

B. III and IV

C. None of the above

D. All of the above

E. Simulate number of losses based on the frequency distribution
II. Simulate the dollar value of the losses from the severity distribution
III. Simulate random number from the copula used to model dependence between the UoMs
IV. Compute dependent losses from aggregate distribution curves

ANSWER: A

Explanation:

I and II is correct because the aggregate loss distribution for an individual unit of measure is generated through a compound loss-distribution simulation. For each simulated period, the model first draws the number of loss events from the fitted frequency distribution, such as a Poisson or negative-binomial distribution. Conditional on that simulated event count, it then draws one loss amount per event from the fitted severity distribution, such as a lognormal, Weibull, or generalized Pareto distribution. Adding the simulated loss amounts produces one simulated aggregate annual loss for that unit of measure. Repeating this process many times creates an empirical aggregate-loss distribution, from which statistics and relevant tail percentiles can be estimated.

This sequence reflects the standard loss distribution approach: aggregate operational loss is the random sum of severities, where the number of terms in the sum is itself random. Dependence modelling using a copula is relevant when separately constructed unit-of-measure aggregate distributions are combined into a bank-wide distribution, rather than when calculating the aggregate distribution for one unit of measure. The former U.S. advanced approaches framework similarly describes operational-risk exposure as derived from the frequency and severity of operational-loss events; see 12 CFR Part 208, Appendix G. For a technical description of compound frequency-severity modelling, see Casualty Actuarial Society discussion paper.

QUESTION NO: 16

Pick underlying risk factors for a position in an equity index option:

I. Spot value for the index

II. Risk free interest rate

III. Volatility of the underlying

IV. Strike price for the option

A. I and IV

B. I, II and III

C. II and II

D. All of the above

E. Spot value for the index
II. Risk free interest rate
III. Volatility of the underlying
IV. Strike price for the option

ANSWER: B

Explanation:

I, II and III is correct because an equity index option's value is sensitive to movements in the level of its underlying index, changes in the relevant risk-free interest-rate curve, and changes in implied volatility. The index spot level is the principal market variable driving the option's directional exposure (delta). Interest rates affect the present-value relationship embedded in option valuation and therefore create rho exposure; for an index option, the applicable rate should be consistent with the option's maturity and relevant currency. Volatility is also a core risk factor because it represents uncertainty about future index movements and materially affects the probability-weighted value of the option's payoff, creating vega exposure. These variables are standard inputs to equity-index option valuation models and should be represented in market-risk measurement, sensitivities, stress testing, and scenario analysis. In contrast to these changing market inputs, the contractual strike is specified when the option is entered into and identifies the payoff terms rather than representing a market risk factor that fluctuates during the life of the position. Cboe's overview of SPX options describes index options and their underlying index exposure, while the Options Industry Council's Greeks guide explains sensitivities to underlying price, volatility, and interest rates.

QUESTION NO: 17

There are two bonds in a portfolio, each with a market value of $50m. The probability of default of the two bonds are 0.03 and 0.08 respectively, over a one year horizon. If the default correlation is 25%, what is the one year expected loss on this portfolio?

A. $1.38m

B. $11m

C. $5.26m

D. $5.5m

ANSWER: D

Explanation:

$5.5m is correct because expected loss is the probability-weighted average loss and, assuming a default results in loss of each bond's stated market value, it is calculated separately for each exposure and then summed. The first bond has expected loss of $50m × 0.03 = $1.5m. The second bond has expected loss of $50m × 0.08 = $4.0m. Thus, the portfolio's one-year expected loss is $1.5m + $4.0m = $5.5m.

The 25% default correlation affects the joint-default probability and the distribution of portfolio losses across scenarios, which is important for measures of unexpected loss, economic capital, and tail risk. It does not change the marginal default probabilities provided for the individual bonds. Consequently, it does not change the expected loss when the loss amount for each default is fixed. This follows from linearity of expectation: the expected portfolio loss equals the sum of the individual expected losses regardless of dependence between the default events. PRMIA's operational and risk-management learning resources emphasize distinguishing expected losses from dependence-driven capital and tail-risk effects; see PRMIA and the Basel Committee's credit-risk guidance.

QUESTION NO: 18

All else remaining the same, an increase in the joint probability of default between two obligors causes the default correlation between the two to:

A. Increase

B. Decrease

C. Stay the same

D. Cannot be determined from the given information

ANSWER: A

Explanation:

Increase is correct. Default correlation is the correlation between two default-indicator variables: each indicator equals one when its obligor defaults and zero otherwise. With the individual probabilities of default held constant, the dependence between the indicators is determined by the extent to which their defaults occur jointly. It can be written as: $\rho = [P(D_1 \cap D_2) - P(D_1)P(D_2)] / \sqrt{[P(D_1)(1-P(D_1))P(D_2)(1-P(D_2))]}$. In the stated scenario, the individual default probabilities, and therefore the denominator and the product $P(D_1)P(D_2)$, remain unchanged. Raising the joint default probability directly raises the numerator. Consequently, default correlation increases. This relationship is important in credit portfolio risk because greater default dependence reduces diversification benefits and can increase the likelihood and severity of portfolio losses during stressed conditions. The formula follows directly from the covariance and correlation definitions for Bernoulli random variables; see the StatLect discussion of the Bernoulli distribution and the StatLect definition of the correlation coefficient.

QUESTION NO: 19

A portfolio has two loans, A and B, each worth $1m. The probability of default of loan A is 10% and that of loan B is 15%. Theprobability of both loans defaulting together is 1%. Calculate the expected loss on the portfolio.

A. 500000

B. 250000

C. 1000000

D. 240000

ANSWER: B

Explanation:

250000 is correct, assuming that a default produces a loss equal to the stated $1 million loan value (that is, 100% loss given default). Expected loss is the probability-weighted average loss and, for a portfolio, equals the sum of each exposure's expected loss: $1,000,000 × 10% plus $1,000,000 × 15% = $100,000 + $150,000 = $250,000. The 1% joint-default probability is relevant to the distribution and variability of portfolio losses, but it does not alter the expected total loss when the individual default probabilities are already known. Equivalently, the mutually exclusive outcomes are: only loan A defaults with 9% probability, only loan B defaults with 14% probability, both default with 1% probability, and neither defaults with 76% probability. The weighted loss calculation is therefore ($1,000,000 × 9%) + ($1,000,000 × 14%) + ($2,000,000 × 1%) = $250,000. This reflects the standard credit-risk expected-loss framework, commonly expressed as exposure at default multiplied by probability of default and loss given default. See the Basel Committee's IRB risk-weight framework and the Federal Reserve overview of credit risk.

QUESTION NO: 20

If P be the transition matrix for 1 year, how can we find the transition matrix for 4 months?

A. By calculating the cube root of P

B. By numerically calculating a matrix M such that M x M x M is equal to P

C. By dividing P by 3

D. By calculating the matrix P x P x P

ANSWER: B

Explanation:

By numerically calculating a matrix M such that M x M x M is equal to P is the appropriate method. Four months is one-third of a year, so the required four-month transition matrix must compose with itself over three consecutive four-month intervals to reproduce the known one-year transition matrix. In other words, the objective is to find a stochastic matrix M satisfying $M^3 = P$. This is a matrix-root or transition-matrix embedding problem, rather than ordinary scalar division or ordinary scalar root-taking. Numerical methods are normally needed because a matrix root may be non-unique, and the desired solution must also retain the defining transition-matrix properties: non-negative entries and rows that sum to one. In practical credit- and operational-risk applications, this requirement matters because the resulting intermediate-period probabilities must remain valid probabilities and must be consistent under repeated time aggregation. The approach relies on time homogeneity of the Markov transition process; it treats each four-month interval as governed by the same matrix M. For background on matrix functions and matrix roots, see Nick Higham, What Is a Matrix Function?. The semigroup relationship underlying time-homogeneous Markov transition probabilities is also described in ProbabilityCourse: Continuous-Time Markov Chains.

QUESTION NO: 21

Which loss event type is the loss of personally identifiable client information classified as under the Basel II framework?

A. Technology risk

B. Clients, products and business practices

C. Information security

D. External fraud

ANSWER: B

Explanation:

Clients, products and business practices is the appropriate Basel II operational-risk loss event type for a loss of personally identifiable client information. Basel II classifies operational-risk losses according to the nature of the event and its underlying business-practice impact. Within this category, the Basel event-type examples include breaches of client privacy, such as disclosure or misuse of confidential customer information. The key feature is the institution's failure in its obligations to clients concerning product delivery, suitability, fiduciary duties, or the proper handling and protection of client data. A data-loss incident may involve technology or information-security control failures as contributing causes, but the Basel loss-event classification is determined by the event category and the client-related harm or duty breached. Accordingly, where personally identifiable client information is lost, exposed, or improperly disclosed, the event is recorded under Clients, products and business practices for Basel operational-risk event-type reporting and analysis. The Basel II framework's operational-risk event-type table and illustrative examples are available in the Basel II: International Convergence of Capital Measurement and Capital Standards. The Basel Committee's broader operational-risk guidance is also available through its Principles for the Sound Management of Operational Risk.

QUESTION NO: 22

Which of the following statements are true:

I. Capital adequacy implies the ability of a firm to remain a going concern

II. Regulatory capital and economic capital are identical as they target the same objectives

III. The role of economic capital is to provide a buffer against expected losses

IV. Conservative estimates of economic capital are based upon a confidence level of 100%

A. I and III

B. I, III and IV

C. III

D. I

E. Capital adequacy implies the ability of a firm to remain a going concern
II. Regulatory capital and economic capital are identical as they target the same objectives
III. The role of economic capital is to provide a buffer against expected losses
IV. Conservative estimates of economic capital are based upon a confidence level of 100%

ANSWER: D

Explanation:

I is the sole true statement: capital adequacy concerns whether a firm holds sufficient loss-absorbing financial resources to withstand the risks inherent in its activities and continue operating as a going concern. In practical risk management, a firm must maintain capital commensurate with its risk profile so that adverse but plausible losses do not force disorderly liquidation, disrupt critical operations, or undermine its ability to meet obligations. Capital therefore supports resilience over a specified planning horizon and provides protection to creditors, depositors, customers, and the wider financial system.

This going-concern perspective is central to prudential capital regulation. The Basel Committee describes its capital framework as strengthening banks' ability to absorb shocks arising from financial and economic stress, thereby supporting financial stability. Its principles for capital adequacy also require capital to be assessed relative to the institution's overall risks, rather than viewed as a purely accounting or static balance-sheet measure. See the Basel III standards and the Basel

Committee's ICAAP supervisory guidance. Thus, the statement that capital adequacy implies the ability of a firm to remain a going concern accurately captures the fundamental purpose of adequate capital.

QUESTION NO: 23

There are two bonds in a portfolio, each with a marketvalue of $50m. The probability of default of the two bonds over a one year horizon are 0.03 and 0.08 respectively. If the default correlation is zero, what is the one year expected loss on this portfolio?

A. $11m

B. $5.26m

C. $5.5m

D. $1.38m

ANSWER: C

Explanation:

$5.5m is the one-year expected loss, assuming—because no recovery rate or loss-given-default rate is supplied—that each default results in a total loss of the bond's $50 million value. Expected loss is calculated as the sum of the expected losses on the individual positions: probability of default multiplied by exposure at default and loss given default. For the first bond, the expected loss is 0.03 × $50m = $1.5m. For the second bond, it is 0.08 × $50m = $4.0m. Adding these expected losses gives $1.5m + $4.0m = $5.5m.

The zero default correlation is consistent with no default dependence for the purpose of this question, but diversification and dependence primarily affect the distribution and volatility of portfolio losses rather than the linear expected-loss total. Expected loss remains the probability-weighted average loss across possible outcomes. This follows the standard credit-risk framework of PD × LGD × EAD; with LGD implicitly equal to 100%, market value is used as the exposure amount. See the Basel Committee's Basel framework publication and PRMIA's Operational Risk Manager certification information.

QUESTION NO: 24

If the loss given default is denoted by L, and the recovery rate by R, then which of the following represents the relationship between loss given default and the recovery rate?

A. L = 1 + R

B. R = 1 + L

C. R = 1 / L

D. R = 1 - L

ANSWER: D

Explanation:

R = 1 - L is correct because loss given default (LGD) and the recovery rate are complementary proportions of the exposure at default. The recovery rate, R, is the fraction of the exposure that a lender expects to recover after a borrower defaults, through collateral liquidation, restructuring proceeds, guarantees, or other collections. LGD, L, is the fraction that is not recovered and therefore represents the economic loss arising from the default. Assuming both are expressed as decimal proportions on the same exposure basis, their sum must equal one: L + R = 1. Rearranging this identity gives R = 1 - L, equivalently L = 1 - R. For example, if 40% of an exposure is recovered, R is 0.40 and LGD is 0.60; conversely, if LGD is 0.25, the recovery rate is 0.75. This relationship is a standard component of credit-risk measurement and expected-loss estimation, where expected loss is commonly represented as probability of default multiplied by exposure at default and LGD. The Basel framework describes LGD as the loss percentage of exposure resulting from borrower default; recovery is

the complementary realized or estimated proportion. See the Basel Committee's Basel framework publication and the Federal Reserve overview of credit risk.

QUESTION NO: 25

A financial institution is considering shedding a business unit to reduce its economic capital requirements. Which of the following is an appropriate measure of the resulting reduction in capital requirements?

A. Incremental capital for the business unit in consideration

B. Proportionate capital for the business unit in consideration

C. Percentage of total gross income contributed by the business unit in question

D. Marginal capital for the business unit in consideration

ANSWER: A

Explanation:

Incremental capital for the business unit in consideration is the appropriate measure because the decision concerns the change in the institution's total economic-capital requirement caused by removing that unit. Incremental capital is calculated using a before-and-after comparison: first estimate economic capital for the institution including the business unit, then estimate it again after the proposed disposal or exit, holding the relevant modelling assumptions and confidence standard consistent. The difference between those two portfolio-level capital figures is the capital reduction attributable to the action.

This approach is especially important because economic capital reflects portfolio effects, including diversification, concentration, correlations, and changes in the residual risk profile. Consequently, the capital released by shedding a unit must be assessed as a change to the overall risk portfolio rather than simply as a standalone allocation. It gives management a decision-useful estimate of how much risk-bearing capacity is affected by the transaction and can support comparison with strategic, financial, and operational consequences of the divestment.

The Basel Committee describes economic capital as an internal assessment of the capital needed to support risks, reinforcing the importance of measuring risk at the enterprise level. See the Basel Committee's guidance on economic capital and PRMIA's professional risk-management resources.

QUESTION NO: 26

Which of the following statements is true:

I. Confidence levels for economic capital calculations are driven by desired credit ratings

II. Loss distributions for operational risk are affected more by the severity distribution than the frequency distribution

III. The Advanced Measurement Approach (AMA) referred to in the Basel II standard is a type of a Loss Distribution Approach (LDA)

IV. The loss distribution for operational risk under the LDA (Loss Distribution Approach) is estimated by separately estimating the frequency and severity distributions.

A. I and II

B. I, III and IV

C. I, II and IV

D. III and IV

E. Confidence levels for economic capital calculations are driven by desired credit ratings
II. Loss distributions for operational risk are affected more by the severity distribution than the frequency distribution
III. The Advanced Measurement Approach (AMA) referred to in the Basel II standard is a type of a Loss Distribution Approach (LDA)

IV. The loss distribution for operational risk under the LDA (Loss Distribution Approach) is estimated by separately estimating the frequency and severity distributions.

ANSWER: C

Explanation:

I, II and IV is correct. Economic capital is generally calibrated to a very high confidence level representing the institution's target solvency standard. A bank's desired external credit rating is a practical driver of that standard because ratings imply an expected probability of default over a specified horizon. Consequently, a stronger target rating normally requires capital sufficient to absorb losses at a more extreme percentile of the loss distribution. The Basel Committee's discussion of economic capital recognizes its role in measuring the capital needed to support a bank's risk profile and solvency objectives; see BIS Working Paper 119, Economic capital and the assessment of capital adequacy.

Under a loss distribution approach, annual operational-risk loss is modeled as a compound process: the number of loss events is estimated through a frequency distribution, while the amount lost per event is estimated through a severity distribution. These components are then combined, typically by simulation or analytical compounding, to generate the aggregate annual loss distribution. Because operational-risk losses often exhibit heavy-tailed severities, the severity model has a particularly strong influence on high quantiles used for capital measurement. Basel's operational-risk framework describes the use of internal loss data and quantitative techniques for measuring operational risk; see International Convergence of Capital Measurement and Capital Standards.

QUESTION NO: 27

Under the CreditPortfolio View model of credit risk, the conditional probability of default will be:

A. lower than the unconditional probability of default in an economic expansion

B. higherthan the unconditional probability of default in an economic expansion

C. lower than the unconditional probability of default in an economic contraction

D. the same as the unconditional probability of default in an economic expansion

ANSWER: A

Explanation:

lower than the unconditional probability of default in an economic expansion is correct. CreditPortfolioView is a multifactor credit-portfolio model in which default risk is linked to systematic macroeconomic conditions, such as economic growth, unemployment, interest rates, exchange rates, and sector-specific conditions. The unconditional probability of default is the borrower's long-run or average default likelihood across all possible states of the economy. By contrast, a conditional probability of default is assessed given a particular realization of the economic factors. During an economic expansion, the macroeconomic environment is favorable: firms generally have stronger revenues and cash flows, easier access to financing, and lower financial distress. Consequently, the model's systematic factors imply a lower conditional likelihood of default than the borrower's through-the-cycle, unconditional default probability. This state-dependent feature is central to portfolio credit-risk modeling because it captures the tendency for defaults to rise and fall together as the economy changes, which in turn affects loss distributions and required economic capital. See the overview of CreditPortfolioView and the Basel Committee's discussion of how economic conditions affect credit risk and default estimates in Studies on the Validation of Internal Rating Systems.

QUESTION NO: 28

A risk analyst peforming PCA wishes to explain 80% of the variance. The first orthogonal factor has a volatility of 100, and the second 40, and the third 30. Assume there are no other factors. Which of the factors will be included in the final analysis?

A. First, Second and Third

B. First and Second

C. First

D. Insufficient information to answer the question

ANSWER: C

Explanation:

First is correct because PCA retains components according to their contribution to total variance, and a factor's variance is the square of its volatility. The three factor variances are 100^2 = 10,000, 40^2 = 1,600, and 30^2 = 900. Thus, total variance is 12,500. The first orthogonal factor explains 10,000 / 12,500 = 0.80, or exactly 80%, of the system's variance. Since the stated retention target is to explain 80% of variance, the first factor alone reaches the threshold; no additional factor is necessary for the final retained set. Orthogonality is important here because it means that the variance contributions of the components are distinct and can be added without double-counting shared variation. In PCA, the usual selection process orders components from largest to smallest eigenvalue (variance) and retains the smallest number whose cumulative explained variance meets or exceeds the selected threshold. This calculation follows that standard cumulative-variance rule. For background on PCA and explained variance, see Statlect's Principal Component Analysis overview and scikit-learn's PCA documentation.

QUESTION NO: 29

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 combines financial-statement ratios with a market-based leverage measure to assess a company's likelihood of financial distress. The model incorporates working capital relative to total assets, retained earnings relative to total assets, earnings before interest and taxes relative to total assets, sales relative to total assets, and the market value of equity relative to the book value of total liabilities. The first, second, third, and fifth inputs are derived from a firm's balance sheet and income statement, capturing liquidity, accumulated profitability, operating performance, and asset turnover. The market-value-of-equity component incorporates investors' current valuation of the firm relative to its debt burden. This blend is important because accounting data describes reported financial condition and operating results, while market value can reflect forward-looking information and changing market perceptions of solvency. Altman developed the Z-score using multivariate discriminant analysis and empirical samples of bankrupt and non-bankrupt firms, but the score calculated for an individual company is based on the specified financial and market inputs. The original model and its variables are described in Edward Altman's work, including Altman Z-Score materials; background on the model is also available from NYU Stern's Edward Altman page.

QUESTION NO: 30

Loss from a lawsuit from an employee due to physical harm caused while at work is categorized per Basel II as:

A. Employment practices and workplace safety

B. Execution delivery and process management

C. Unsafe working environment

D. Damage to physical assets

ANSWER: A

Explanation:

Employment practices and workplace safety is the applicable Basel II operational-risk loss event type. Basel classifies operational-risk losses into seven high-level event types to support consistent loss-data collection, risk identification, measurement, and reporting. This category covers losses arising from acts that are inconsistent with employment, health, or safety laws or agreements; payment of personal-injury claims; and employment-related discrimination or compensation matters. An employee lawsuit seeking recovery for physical harm sustained in the workplace is therefore a workplace-safety-related personal-injury claim, regardless of whether the loss ultimately consists of legal expenses, a settlement, a judgment, or related compensation. The classification is determined by the underlying event and causal circumstances—an employee injury connected to the working environment—not merely by the form of the resulting expense or the fact that litigation occurred. Basel II's detailed loss-event-type examples specifically place employee compensation and personal-injury matters within this category. Using this taxonomy consistently enables an institution to aggregate comparable internal loss events and assess control weaknesses in human-resources and workplace-safety processes. The Basel II framework is available from the Bank for International Settlements; its operational-risk event-type taxonomy is also reproduced in the Basel Committee's operational risk guidance.

QUESTION NO: 31

Which of the following should be included when calculating the Gross Income indicator used to calculate operational risk capital under the basic indicator and standardized approaches underBasel II?

A. Insurance income

B. Operating expenses

C. Fees paid to outsourcing service providers

D. Net non-interest income

ANSWER: D

Explanation:

Net non-interest income is included because Basel II defines gross income, for purposes of the Basic Indicator Approach and the Standardised Approach, as net interest income plus net non-interest income. This definition provides the income-based exposure measure to which the applicable operational-risk capital percentage is applied. Net non-interest income captures the recurring non-interest revenue component of a bank's business, such as relevant fee, commission, trading, and other ordinary income components after the appropriate netting reflected in the accounting measure. Its inclusion ensures that the gross-income indicator reflects both the interest-generating and non-interest-generating scale of banking activities, rather than only lending-related revenue. The Basel II text also specifies that the measure is calculated before deductions for provisions and operating expenses, while applying stated exclusions for certain non-recurring and non-banking items. Accordingly, net non-interest income is a direct, explicit component of the gross-income definition and must be incorporated in the calculation. The authoritative Basel II framework sets out this definition in its operational-risk provisions; see paragraph 650 of the Basel II: International Convergence of Capital Measurement and Capital Standards. The Basel Committee's Basel II overview page provides the framework's official context.

QUESTION NO: 32

A bank's detailed portfolio data on positions held in a particular security across the bank does not agree with the aggregate total position for that security for the bank. What data quality attribute is missing in this situation?

A. Data completeness

B. Data integrity

C. Auditability

D. Data extensibility

ANSWER: B

Explanation:

Data integrity is the missing attribute because integrity requires data to remain accurate, consistent, and reliable across related records, systems, and aggregation levels. Here, the bank should be able to reconcile the detailed positions held in the security—whether organized by desk, legal entity, portfolio, or booking system—to the bank-wide aggregate position. When those detailed records do not add up to the reported total, there is a consistency and reconciliation failure: the data cannot be relied on as a coherent representation of the same underlying exposure. In operational-risk and risk-data-management practice, this is important because inaccurate aggregation can lead to incorrect exposure measurement, limit monitoring, capital calculations, risk reporting, and management decisions. Strong integrity controls commonly include reconciliations, validation rules, controlled data lineage, and investigation of breaks between source-level and consolidated data. This interpretation is also consistent with the BCBS 239 principle that risk data should be accurate and adaptable, with data aggregated on a largely automated basis to minimize errors. See the Basel Committee's Principles for effective risk data aggregation and risk reporting (BCBS 239) and the PRMIA professional resources.

QUESTION NO: 33

For a loan portfolio, expected losses are charged against:

A. Economic capital

B. Regulatory capital

C. Credit reserves

D. Economic credit capital

ANSWER: C

Explanation:

Credit reserves is correct because expected loss represents the statistically anticipated, average level of credit losses over a specified horizon. Since these losses are foreseeable costs of lending, a bank incorporates them into loan pricing and recognizes an allowance or reserve for expected credit losses in its financial reporting. When borrowers default or loans deteriorate, the resulting losses are charged against that allowance, subject to the applicable accounting framework and its measurement requirements. This treatment distinguishes routine, expected credit costs from unusually severe deviations from expected outcomes, which are the losses capital is intended to absorb. Under IFRS 9, entities recognize loss allowances for expected credit losses and update those allowances as credit risk and expected cash shortfalls change. The Basel framework likewise describes expected loss as generally being addressed through provisions, whereas capital provides protection against unexpected loss. Thus, for a loan portfolio, expected losses are charged against credit reserves. See the IFRS 9 Financial Instruments overview and the Basel Committee's Basel III post-crisis reforms.

QUESTION NO: 34

Which of the following statements are correct in relation to the financial system just prior to the current financial crisis:

I. The system was robust against small random shocks, but not against large scale disturbances to key hubs in the network

II. Financial innovation helped reduce the complexity of the financial network

III. Knightian uncertainty refers to risk that can be quantified and measured

IV. Feedback effects under stress accentuated liquidity problems

A. I, II and IV

B. II and III

C. I and IV

D. III and IV

ANSWER: C

Explanation:

I and IV is correct. Before the global financial crisis, the financial system appeared resilient to many limited, relatively isolated shocks. However, its resilience was misleading because major institutions, wholesale funding markets, central counterparties, and other highly connected participants operated as important hubs. Stress affecting such nodes could spread rapidly through concentrated counterparty exposures, common asset holdings, and payment and funding links. The Bank for International Settlements has described how the structure of the system and the interconnectedness of institutions amplified shocks once core markets and participants came under pressure.

Feedback effects were particularly important for market and funding liquidity. Falling asset prices weakened balance sheets and increased margin or collateral demands. Institutions then sought to conserve cash, reduce lending, and sell assets. Those sales put further pressure on market prices, which in turn increased losses and funding stress. This self-reinforcing cycle illustrates why liquidity conditions can deteriorate sharply during systemic stress rather than remain a simple, stable attribute of individual firms. The Financial Stability Board's analysis of crisis vulnerabilities similarly emphasizes the interaction between leverage, funding pressures, asset sales, and market liquidity. See the BIS report on the financial crisis and the Financial Stability Board report on addressing procyclicality.

QUESTION NO: 35

Which of the following statements are true:

I. A transition matrix is the probability of a security migrating from one rating class to another during its lifetime.

II. Marginal default probabilities refer to probabilities of default in a particular period, given survival at the beginning of that period.

III. Marginal default probabilities will always be greater than the corresponding cumulative default probability.

IV. Loss given default is generally greater when recovery rates are low.

A. I and III

B. I, III and IV

C. II and IV

D. I and IV

ANSWER: C

Explanation:

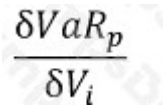
II and IV is correct. Marginal default probability describes the default risk for a specified period within a multi-period horizon, using the borrower's survival to the start of that period as the relevant condition. This period-by-period framing is essential when converting a credit-rating transition structure or a term structure of default risk into expected-loss and valuation calculations. Cumulative default probability, by contrast, aggregates the probability that default has occurred at any point up to a stated horizon; it is built from the sequence of period-specific default risks.

Loss given default (LGD) measures the proportion of exposure that is not recovered after a default. In its basic form, LGD is one minus the recovery rate, subject to such considerations as collateral, seniority, workout costs, and timing of recoveries. Therefore, when the recovery rate is lower, the unrecovered proportion of the exposure is higher and LGD increases. This inverse relationship is a foundational input to credit-risk expected loss, commonly represented as probability of default multiplied by LGD and exposure at default. The Basel Framework describes LGD as the loss on an exposure following default, while the Federal Reserve provides related supervisory credit-risk guidance: Basel Framework—Credit Risk and Federal Reserve—Credit Risk.

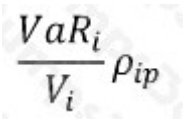
QUESTION NO: 36

Which of the following formulae describes Marginal VaR for a portfolio p, where V_i is the value of the i-th asset in the portfolio? (All other notation and symbols have their usual meaning.)

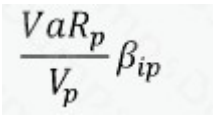
A)



B)



C)



D)

All of the above

A. Option A

B. Option B

C. Option C

D. Option D

ANSWER: D

Explanation:

All of the above is correct because marginal Value at Risk for position *i* is the sensitivity of total portfolio VaR to a small change in that position's value: $MVaR_i = \partial VaR_p / \partial V_i$. Under the standard parametric, delta-normal portfolio-VaR framework, this derivative can be expressed in several algebraically equivalent ways. Starting with portfolio VaR as the selected normal quantile multiplied by portfolio volatility, differentiation with respect to a component value yields an expression involving the component's covariance with portfolio returns divided by portfolio volatility. Covariance can then be rewritten using correlation and the individual and portfolio volatilities. Equivalently, expressing the covariance through the component's beta relative to the portfolio produces the beta-and-volatility form. Thus, the displayed derivative, covariance/correlation, and beta representations all describe the same marginal contribution per one-unit change in the component's market value. This measure supports risk attribution because multiplying marginal VaR by the component value gives its component VaR, and the resulting component contributions aggregate to portfolio VaR under the usual homogeneous VaR assumptions. PRMIA's risk-management curriculum identifies VaR and its decomposition as core market-risk concepts; see PRMIA Risk Management Professional. A useful technical overview of VaR methodology is also provided by the Bank for International Settlements.

QUESTION NO: 37

A cumulative accuracy plot:

A. is a measure of the correctness of VaR calculations

B. measures the accuracy of credit risk estimates

C. measures accuracy of default probabilities observed empirically

D. measures rating accuracy

ANSWER: D

Explanation:

“measures rating accuracy” is correct because a cumulative accuracy plot evaluates the discriminatory, or rank-ordering, performance of a credit-rating or credit-scoring system. It orders obligors from the weakest to the strongest assigned rating (or score) and plots the cumulative proportion of observed defaults against the cumulative proportion of the population. A system with useful ratings concentrates a relatively high share of subsequent defaults among obligors assigned weaker ratings, producing a curve that lies materially above the diagonal representing random ranking. Thus, the plot assesses whether the rating process successfully differentiates higher-risk obligors from lower-risk obligors based on their eventual default experience. This is commonly called discrimination or ranking accuracy, rather than calibration. Calibration concerns whether assigned probability-of-default levels correspond numerically to realized default frequencies, whereas a cumulative accuracy plot focuses on the ordering implied by the ratings. The Basel Committee identifies discriminatory power as a central dimension for validating rating systems and discusses graphical tools used to assess it. See the Basel Committee working paper on validating internal rating systems and the associated Basel publication page.

QUESTION NO: 38

A long position in a credit sensitive bond can be synthetically replicated using:

A. a long position in a treasury bond and a short position in a CDS

B. a long position in a treasury bond and a long position in a CDS

C. a short position in a treasury bond and a short position in a CDS

D. a short position in a treasury bond and a long position in a CDS

ANSWER: A

Explanation:

A long position in a credit-sensitive corporate bond has two principal economic components: exposure to the underlying risk-free interest-rate curve and exposure to the issuer’s credit risk. The risk-free component can be approximated by buying a Treasury bond (more precisely, a risk-free instrument with comparable maturity, currency, and cash-flow characteristics). The credit component is obtained by selling credit protection through a CDS. A CDS protection seller receives periodic premium payments, which economically represent compensation for bearing the reference entity’s default risk; in exchange, the seller must compensate the protection buyer if a credit event occurs. Combining a long Treasury position with a short CDS position therefore produces the principal return and credit-risk exposure associated with owning the credit-sensitive bond, subject to practical differences such as funding, liquidity, recovery assumptions, accrued interest, and maturity or coupon mismatches. This relationship is commonly expressed as the cash-bond credit spread being linked to the CDS spread through the cash-and-CDS basis. The International Swaps and Derivatives Association describes CDS as a contract in which the protection seller receives periodic payments for assuming credit-event risk: ISDA CDS Market Practice Guide. The Federal Reserve Bank of New York also provides an overview of credit default swaps and their transfer of credit risk: Federal Reserve Bank of New York Staff Report.

QUESTION NO: 39

Which of the following best describes a 'break clause ?

A. A break clause gives either party to a transaction the right to terminate the transaction at market price at future date(s)

B. A break clause determines the process by which amounts due on early termination will be determined

C. A break clause describes rights and obligations when the derivative contract is broken

D. A break clause sets out the conditions under which the transaction will be terminated upon non-compliance with the ISDA MA

ANSWER: A

Explanation:

A break clause gives either party to a transaction the right to terminate the transaction at market price at future date(s). In derivatives practice, this contractual feature is commonly called a mutual break clause or mutual put. It establishes one or more specified future dates on which the parties may elect to end an otherwise continuing trade, with the close-out amount determined using the agreed market-value approach. It is particularly useful for long-dated transactions because it provides an agreed opportunity to reassess and end the exposure before the original maturity, while preserving a clear, pre-negotiated contractual mechanism for valuation and settlement.

The essential features are the termination right, the identified future exercise date or dates, and termination at market value. A break clause therefore concerns an elective contractual termination right within an ongoing transaction rather than a default-driven close-out event. Documentation should state the available break dates, notice requirements, which party or parties hold the right, and the valuation mechanics so that the resulting termination payment can be calculated consistently. This approach fits the wider framework in which derivatives documentation allocates rights and obligations over the life of a trade. See ISDA's overview of the ISDA Master Agreement and its documentation resources.