Use the following is to answer questions 1 and 2

Suppose that a business line of a bank has a loan book of USD 100 million. The average interest rate is 10%. The book is funded at a cost of USD 5.5 million. The economic capital against these loans is USD 7.5 million (7.5% of the loan value) and is invested in low risk securities earning 5.5% per annum. Operating costs are USD 1.5 million per annum and the expected loss on this portfolio is assumed to be 1% per annum (i.e., USD 1 million). The firm's cost of capital is 15%.

1. The risk-adjusted return of the business line used in the computation of RAROC is:
   a. USD 2.4125 million
   b. USD 3 million
   c. USD 1.5875 million
   d. USD 2 million

2. The RAROC for this business line is:
   a. 26.7% b. 37.1% c. 21.2% d.32.2%

3. Capital is used to protect the bank from which of the following risks:
   a. Risks with an extreme catastrophic financial impact
   b. High frequency low loss events
   c. Low frequency risks with significant severe financial impact
   d. High frequency uncorrelated events

4. Testing the fitness of the operational loss severity and frequency distributions to the data is fundamental. Which of the following is **NOT** a goodness-of-fitness test for severity distributions?
   a. Kolmogorov-Smirnov
   b. Anderson-Darling
   c. Macaulay
   d. Cramer-Von Mises

5. According to the Basel Committee which of the options below is **NOT** a quantitative standard that a bank must meet before it is permitted to use the Advanced Measurement Approach (AMA) for operational risk capital:
   a. A bank's risk measurement system should be sufficiently 'granular' to capture the major drivers of operational risk affecting the shape of the tail of the loss estimates
   b. Supervisors will require the bank to calculate its regulatory capital as the Unexpected Loss (UL), disregarding the Expected Losses (EL)
   c. Internally generated operational risk measures used for regulatory capital purposes must be based on a minimum 5-year observation period of loss data. When the bank first moves to the AMA a 3-year historical data window is acceptable.
   d. The tracking of internal loss data

6. A situation where the existence of insurance changes the behaviour of economic agents is referred to as:
    a. Asymmetric information
    b. Externalities
    c. Moral hazard
    d. Regulatory arbitrage

7. Which of the following statements about operational risk is **NOT** true?
    a. Operational risk is largely internal to a financial institution and thus observation data on operational losses are not easily available
    b. Operational risk can be conceptually separated into exposures and risk factors, thus exposures are easily measured and controlled
    c. Operational risk includes major failure of information technology systems and the inability to report in a timely manner to investors, regulators, and clients
    d. Operational losses are unlikely to be uniform throughout all organizations and varies under different business profiles and internal control

8. Which of the following actions could worsen rather than reduce model risk?
    a. Require documentation of the model so that the risk manager can produce the same prices as the user of the model
    b. Use a simulation benchmark model to assess a model that has a closed-form solution
    c. Make the model for the dynamics of the underlying fit past data better by making the price of the underlying depend on additional variables
    d. Plot model prices against parameter values

9. Your Board of Directors wants a comprehensive review of each business units' operational risk activities. As the head of the corporate operational risk unit, you know that little has been done to implement an operational risk process at the business unit level and that you need to immediately come up with a framework. Which of the following statements offers the best strategy?
    I. The audit committee of the Board should first define its objectives to ensure that all the firm's business units' operational risk programs are providing required information
    II. The auditing department is to be charged with developing an operational risk program for each business unit, with the business unit being made clearly aware that they will be held accountable for its implementation
    III. That your department immediately assess the operational risk for each business unit using independent data feeds to ensure the information fed into the assessment cannot be manipulated
    IV. A senior manager from each profit centre is to be charged with developing their own operational risk self assessment program based on guidelines you provide.

a. I only
b. I and IV only
c. I and III only
d. IV only

10. Which of the following **CORRECTLY** describe the similarities between Operational VAR and Market VAR?
    I. Both VARs, when used for regulatory capital measurement, need to be validated against actual loss experience
    II. Both are built on data (market prices for Market VAR and operational loss data for Operational VAR) that is readily available
    III. Both are modelled based on a normal distribution
    IV. Extreme Value Theory can be used to model extreme losses at the tail of the distribution for both Operational and Market VAR

    a. I and IV
    b. I, II and III
    c. I, II and IV
    d. II, III and IV

11. Which of the following outcomes is **NOT** associated with an operational risk process?
    a. The sale of call options being booked as a purchase
    b. A monthly volatility is inputted in a model that requires a daily volatility
    c. A loss is incurred on an option portfolio because ex post volatility exceeded expected volatility
    d. A volatility estimate is based on a time-series that includes a price that exceeds the other prices by a factor of 100

12. Which one of the following approaches to measure operational risk is **NOT** used only for a bottom-up approach?
    a. Causal networks
    b. Connectivity matrix
    c. Multi-factor models
    d. Reliability analysis

13. Which of the following is a weakness of the top-down approach to measuring operational risk?
    a. It fails to consider historical information
    b. You cannot use earnings volatility as an indicator of risk potential in this approach
    c. Information on specific sources of risk is not provided
    d. It is based on the specific mapping of business units, and not the overall organization

14. Which of the options below does **NOT** describe a problem faced by banks when purchasing insurance as a hedge against operational risk?
    a. The loss reimbursement period can take several years
    b. The credit rating of insurers
    c. The different perspective of operational risk between banks and insurers
    d. Not having an operational VAR

15. Which of the following internal controls does **NOT** effectively reduce operational risk?
    a. Separation of trading from accounting and data entry
    b. Automated reminders of payments required and contract expirations
    c. A multitude of users can modify trade tickets so that errors may be quickly corrected
    d. Reconciling results from different systems to ensure data integrity