ACTUARIAL SOCIETY OF SOUTH AFRICA

Subject F206

Banking Applications

Syllabus

For the 2019 Examinations

May 2018

The syllabus is up to date with industry developments as at the end of May in the year preceding the publication of the syllabus. However, students attempting F200 subjects should also have knowledge and be aware of topical, relevant and current issues, as these may also feature in the examinations.

Aim

The aim of the Banking Applications subject (F206) is to instil in successful candidates the key principles of banking and finance practice and the application thereof within a banking organisation, including governance and strategy setting and the principles of actuarial practice in solving complex problems and to produce coherent advice and recommendations in the management of a banking operation within a specifically South African environment.

Links to other subjects

Subject F105 – Finance and Investments Specialist Technical and Subject F106 – Enterprise Risk Management (ERM) provide the underlying principles upon which this subject is based.

It is assumed that candidates have a good understanding of the principles covered in these subjects, especially Subject F106 (ERM).

It also assumes knowledge of the risk management techniques introduced in Subject A311 – Actuarial Risk Management, as well as the knowledge instilled in most of the A1, A2 and NA subjects.

Objectives:

On the successful completion of this subject the candidate will be able to:

1. Demonstrate knowledge and understanding of the operations of a banking institution in South Africa

1. Discuss the role of banking institutions in the South African economy:

   1.1 As agents of liquidity
   1.2 To facilitate investments by firms and to enable growth and job creation
   1.3 To facilitate local and international trade

2. Describe the different types of banks, including:

   2.1 Development banks
   2.2 Reserve Bank
   2.3 Traditional deposit taking banks
   2.4 Wholesale funding operations
   2.5 Investment banks
   2.6 Community banks

3. Describe the various activities carried out by banks, including:

   3.1 Retail banking activities and various products offered
   3.2 Corporate banking activities and various products offered

3.3 Investment banking activities and various products offered
3.4 Understanding of basic pricing process and elements of various products

4. Demonstrate an understanding and knowledge of a bank's sources of revenue, including:

   4.1 Net interest income from banking book operations
   4.2 Non-interest revenue from banking book operations
   4.3 Trading income from trading book operations

5. Demonstrate an understanding and knowledge of a bank's cost base, including:

   5.1 Operational expenses
   5.2 Cost of credit
   5.3 Cost of capital
   5.4 Tax

6. Demonstrate an understanding of a bank's financial statements, including:

   6.1 Bank income statement and components
   6.2 Bank balance sheet and components
   6.3 Financial ratio analysis
   6.4 Accounting for impairments
   6.5 Fair value accounting

7. State and define the main types of capital that must be held by a bank, including:

   7.1 Regulatory capital, including Tier I and Tier II
   7.2 Economic capital
   7.3 Available capital or book capital
   7.4 Risk weighted assets
   7.5 Treatment of minority interest

8. Outline the various sources of funds that banks use to fund their operations, including:

   8.1 Deposit taking
   8.2 Wholesale markets funding
   8.3 Central bank funding
   8.4 Tier I capital: shareholder equity that is not obliged to be repaid
   8.5 Tier II capital: other capital that is obliged to be repaid

9. State and define the main types of financial and non-financial risks faced by a bank, including:

   9.1 Credit risk
   9.2 Market risk
   9.3 Currency risk
   9.4 Interest rate risk
   9.5 Liquidity risk

9.6 Operational risk
9.7 Equity risk or investment risk
9.8 Reinvestment risk
9.9 Pre-payment risk
9.10 Model risk
9.11 Country risk
9.12 Business risk
9.13 Residual risk
9.14 Counterparty credit risk

2. Demonstrate knowledge and understanding of a typical corporate governance structure of a banking operation in South Africa

1. Describe a typical corporate governance structure of a banking operation in South Africa, including:

   1.1 Board of directors, board committees, roles and responsibilities
   1.2 The executive committee and senior management, roles and responsibilities
   1.3 Various committees existing within a bank and their roles and responsibilities, Including:

      1.3.1 Group risk (and capital management) committee
      1.3.2 Asset-liability management committee (ALCO) or Treasury committee
      1.3.3 Credit risk committee
      1.3.4 Internal audit committee
      1.3.5 Remuneration committee
      1.3.6 Group model validation committee

2. Outline the key elements of the Basel I framework and perceived shortcomings of the Basel II Accord, including:

   2.1 Capital adequacy

3. Show an understanding of the Basel II framework and discuss the implications of Basel III for banking operations, including:

   3.1 Pillar I: Minimum capital requirements (rules-based)
   3.2 Pillar II: Supervisory review process (non-rules based) including the Internal Capital Adequacy Assessment Process (ICAAP)
   3.3 Pillar III: Market review (public disclosure)

4. Show an understanding of the Basel III framework and discuss the Implications of Basel III for banking operations, including:

      4.1.1 New definition of Tier I and Tier II capital
      4.1.2 Capital conservation buffer
      4.1.3 Countercyclical capital buffer
      4.1.4 Domestic Systemically Important Banks (D-SIB)

4.1.5 Liquidity coverage ratio (LCR) and long-term structural ratio (NSFR)
4.1.6 Minimum leverage ratio
4.1.7 An Introduction to Basel IV

5. Outline the roles of the SARB, Financial Services Board and Financial Sector Conduct Authority in managing and regulating banking operations under the twin peaks regulatory framework

6. Show an understanding of the various Acts of Parliament, guidance notes and accounting standards under which banks operate, including:

6.1 The Financial Sector Regulation Act
6.2 The Companies Act
6.3 The National Credit Act
6.4 The Banks Act
6.5 SARB guidance notes and directives
6.6 King III
6.7 IFRS and IAS
6.8 FICA and FAIS
6.9 TCF

3. Demonstrate knowledge and understanding of the role of risk management in a banking operation

1. Discuss the role of high level risk management in a banking operation

2. Discuss the impact on banking operations of an aggregation of risk, including:

2.1 Diversification
2.2 Concentration
2.3 Correlation

3. Explain and discuss the process of setting risk management tolerance and parameters, including:

3.1 Allocation of risk based capital
3.2 Setting loan sanctioning criteria

4. Demonstrate how risk modelling may be used to identify and measure the different types of risks in a banking operation, including:

4.1 Frequency and severity modelling for both credit and operational risk
4.2 Statistical modelling for portfolio management
4.3 Survival models for credit risk management
4.4 Asset-liability modelling for balance sheet management and the Asset-Liability Committee (ALCO)
4.5 Control cycle for all models
4.6 Cash-flow models for budgeting and balance sheet management

5. Demonstrate an understanding of how risks in a banking operation may be mitigated and/or managed, including:

   5.1 Positions
   5.2 Credit hedging
   5.3 Securitisation

4. Demonstrate knowledge and understanding of the credit risk measurement framework in a banking operation

1. Describe and explain the credit risk measurement process for banking book exposures, including:

   1.1 Qualitative factors: retail and non-retail exposures

      1.1.1 Non-retail
      1.1.2 Retail

   1.2 Internal ratings

      1.2.1 Pricing, provisioning and capital management
      1.2.2 Retail, non-retail, and specialised lending exposures
      1.2.3 Consistency: internal ratings and external credit rating agencies

   1.3 Counterparty risk parameters

      1.3.1 Counterparty risk parameters for non-defaulted assets
         - Probability of default (PD)
         - Expected loss given default (ELGD or LGD)
         - Expected exposure at default (EAD)
      1.3.2 Counterparty risk parameters for defaulted assets
      1.3.3 Impaired assets

   1.4 Default events and measures (Retail and Non-Retail)

      1.4.1 Default events and measures: specialised lending
      1.4.2 Default events and measures: cross-border lending
      1.4.3 Impairment vs. default

   1.5 Product credit risk measurement

   1.6 Credit risk terminology

      1.6.1 Lending exposure (legal entity)
      1.6.2 Group entity (obligor)
      1.6.3 Facilities / Accounts (transactions) – draw down profile
      1.6.4 Collateral
      1.6.5 Guarantees – parent, director, corporate, sovereign
      1.6.6 On-balance-sheet netting

1.6.7 Derivatives and hedging

1.7 Prudential standards: parameters and models

1.7.1 Standardised approach

1.7.2 Advanced IRB:
- Pillar I (minimum capital)
- Pillar II (supervision)
- Pillar III (market discipline)

1.8 Model development

1.8.1 Probability of default (PD)
1.8.2 Loss given default (LGD)
1.8.3 Exposure at default (EAD)
1.8.4 Risk monitoring and model validation
1.8.5 Risk appetite statement

2. Describe and explain trading book credit exposures gained through over-the-counter (OTC) contracts, including:

2.1 Swaps and exotic exposures
2.2 Potential future exposures and regulatory add-ons
2.3 Netting
2.4 Basel III
2.5 Market implied probability of default and survival curves

2.5.1 Default and survival curves
2.5.2 Closed form analytical approximations vs Monte Carlo simulation

5. Demonstrate knowledge and understanding of the credit risk management framework in a banking operation

1. Demonstrate an understanding of organisational structures in banking operations designed to manage credit risk

2. Demonstrate an understanding of an asset writing strategy that is consistent with a risk appetite statement to manage credit risk in a banking operation, including:

2.1 Credit scores and credit bureaus
2.2 Approvals and cut-offs

3. Demonstrate an understanding of limits that are consistent with a risk appetite statement designed for managing credit risk in a banking operation

4. Demonstrate knowledge and understanding of the credit risk assessment process in a banking operation, including:

4.1 Financial analysis
4.2 Loan facilities
4.3 Qualitative Analysis

5. Demonstrate knowledge and an understanding of risk-adjusted loan pricing and facilities, including:

   5.1 The basics of loan pricing

6. Demonstrate knowledge and an understanding of the credit authorisation process, including designing and implementing a credit policy

7. Demonstrate knowledge and an understanding of the collateral management process

8. Demonstrate knowledge and an understanding of credit portfolio monitoring and control

9. Demonstrate knowledge and an understanding of the workout processes for recovery of losses, including:

   9.1 Corporate debt restructuring
   9.2 Consumer default and debt counselling

6. Demonstrate knowledge and understanding of the measurement and management of market and interest rate risk profiles in a banking operation

1. Describe and discuss the measurement and management of interest rate risk profile in a banking operation, including:

   1.1 Interest rate risk
      1.1.1 Forms of interest rate risk
      1.1.2 Yield curves
   1.2 Benchmarks
   1.3 Risk measurement and sensitivity
   1.4 Interest rate risk policy – The asset-liability committee (ALCO)

2. Describe and discuss market risk and market risk management, including:

   2.1 Market risk definition
   2.2 Value at Risk (VaR)
   2.3 Market and systemic risk and funding
   2.4 Hedging: tools, strategy and risks
      2.4.1 Forward rate agreements
      2.4.2 Futures
      2.4.3 Overnight index swaps
      2.4.4 Options
   2.5 Trading and funding policy
   2.6 Proprietary trading

7. Demonstrate knowledge and understanding of the operational risk measurement framework in a banking operation

1. Demonstrate an understanding of operational risk overview within a banking environment, including:

   1.1 Conduct risk

2. Demonstrate an understanding of current market observations and trends in measuring operational risk, including:

   2.1 Operational risk measurement concepts
   - 2.1.1 Loss definition
   - 2.1.2 Loss data thresholds
   - 2.1.3 Date of loss allocation
   - 2.1.4 Grouping of loss events
   - 2.1.5 Model granularity, model validation and monitoring
   - 2.1.6 Distribution assumptions
   - 2.1.7 Correlation and dependence
   - 2.1.8 Data integration

3. Demonstrate knowledge and understanding of the standardised basic indicator approach (BIA) to operational risk measurement, including:

   3.1 Standardised Approach

4. Demonstrate knowledge and understanding of the Advanced Measurement Approach (AMA) to operational risk measurement, including:

   4.1 Loss Distribution Approach (LDA)
   - 4.1.1 Qualitative input and model validation
   - 4.1.2 Key risk indicators

5. Demonstrate knowledge and understanding of the operational risk management framework

6. Demonstrate knowledge and understanding of operational risk capital allocation

7. Demonstrate knowledge and understanding of the current approaches to Fraud analytics

8. Demonstrate knowledge and understanding of the liquidity risk management framework and process in a banking operation

1. Outline and describe the key elements of liquidity risk and liquidity risk management, including:

   1.1 Defining liquidity

1.2 Sources of liquidity
1.3 Treasury function
1.4 Liquidity risk management
1.5 Liquidity risk metrics
  1.5.1 Loan-to-deposit ratio (LTD)
  1.5.2 1-week and 1-month liquidity ratios
  1.5.3 Cumulative liquidity model
  1.5.4 Liquidity risk factor
  1.5.5 Concentration report and funding source report
  1.5.6 Inter-entity lending report
1.6 Process to set liquidity risk limits
  1.6.1 Loan-to-deposit ratio (LDR)
  1.6.2 Short-term wholesale funding reliance
  1.6.3 Liquidity reserves
  1.6.4 Off-balance-sheet commitments
  1.6.5 Market lockout
  1.6.6 Funding concentration
  1.6.7 Regulatory / PRA metrics
  1.6.8 Encumbrance ratio
  1.6.9 Type A: Type B ratio
1.7 Internal funds pricing mechanism
  1.7.1 Setting the bank policy standard
1.8 Liquidity contingency funding plan
1.9 Stock of liquid assets

2. Describe the process of modelling cash inflows and outflows in liquidity risk management, including:

   2.1 Measuring contractual maturity gaps
   2.2 Modelling behaviour of demand deposits
   2.3 Modelling pre-payment behaviour
   2.4 Modelling behaviour of contingency funding obligations

3. Demonstrate knowledge and understanding of scenario analysis and stress testing in liquidity risk management, including:

   3.1 Importance of scenario testing for understanding liquidity risk

9. Demonstrate knowledge and understanding of the liquidity risk management framework and process in a banking operation

1. Demonstrate knowledge and understanding of stress testing in liquidity risk management, including:

   1.1 Liquidity stress testing policy approach
   1.2 Governance aspects relating to liquidity risk

2. Demonstrate knowledge and understanding of stress test reports

3. Discuss Basel III liquidity risk metrics, including:

    3.1 Overview of Basel III liquidity risk framework
    3.2 Liquidity coverage ratio (LCR)
        3.2.1 Assumptions on liabilities outflow
        3.2.2 High quality liquid assets (HQLA)
        3.2.3 Sample stressed outflow report
        3.2.4 Example outflow assumptions
        3.2.5 Example LCR calculation
        3.2.6 Factors which determine the liquidity value of deposits
        3.2.7 LCR and liabilities strategy
        3.2.8 Deposits analysis template
    3.3 Net stable funding ratio (NSFR)
        3.3.1 Understanding the calculation
        3.3.2 Addressing NSFR compliance

4. Demonstrate knowledge and understanding of the Individual Liquidity Adequacy Assessment (ILAA) framework, including:

    4.1 ILAA stress testing framework

5. Demonstrate knowledge and understanding of SARB regulatory reporting requirements

6. Discuss ascertaining behavioural tenor, including:

    6.1 Deposits behavioural tenor
    6.2 Behaviouralisation exercise

7. Demonstrate knowledge and understanding of the liquid asset buffer, including:

    7.1 Liquid asset buffer (LAB) principles
    7.2 Risk appetite statement and LAB minimum size

10. Demonstrate knowledge and understanding of the liquidity risk management framework and process in a banking operation

1. Demonstrate knowledge and understanding of the concept of bank internal funds pricing, including:

    1.1 Framework design and economic basis of transfer pricing
    1.2 Behavioural tenor of deposits, lending facilities and other optionality characteristics

2. Demonstrate knowledge and understanding of the concept of pricing term liquidity, including:

    2.1 Example
    2.2 Funds Transfer Pricing (FTP) curves

2.3 Summary of the logical basis for sound FTP

3. Describe and discuss the process of calculating the term liquidity premium:

   3.1 Calculation
   3.2 Difficulties with calculating the TLP
   3.3 FTP curves

4. Demonstrate knowledge and understanding of template FTP regime, including:

   4.1 Retail bank FTP regime
   4.2 Corporate bank FTP regime
   4.3 Wholesale bank FTP regime
   4.4 Illustration

5. Demonstrate knowledge and understanding of dynamic FTP

6. Discuss a case study example

7. Demonstrate knowledge and understanding of treasury allocation and FTP

8. Understand the principles behind statutory costs that include Cash Reserve Ratio (CRR) and High Quality Liquid Assets (HQLA) within FTP

11. Demonstrate knowledge and understanding of bank capital management framework

1. Demonstrate knowledge and understanding of the banking model and capital, including:

   1.1 The business model and capital
      1.1.1 Bank balance sheet
   1.2 Treatment of bank capital
   1.3 Expected and unexpected losses
   1.4 Understanding the difference between capital and liquidity
   1.5 Capital regulation

2. Discuss key capital considerations, including:

   2.1 Regulatory capital requirements
   2.2 Leverage ratio
   2.3 Credit rating considerations

3. Demonstrate knowledge and understanding of capital management policy, including:

   3.1 Capital management
      - Capital targets

- Risk-weighted assets and economic capital demand
- Business restructuring
- Business line profit

3.2 Capital resource management
- Capital allocation
- Performance metrics
- Portfolio credit risk management

3.3 Capital management strategy

4. Demonstrate knowledge and understanding of capital adequacy and stress testing, including:

4.1 ICAAP primer
- 4.1.1 Risk taxonomy and quantification
- 4.1.2 Stress tests

4.2 ICAAP process guidelines
- 4.2.1 ICAAP implementation
  - Definition of bank-specific requirements (target state)
  - Gap analysis
  - Implementation planning
  - Implementation
- 4.2.2 Features of a good ICAAP
  - Early detection of gaps in fulfilment
  - Selection of methods
  - Master plan and project management
  - Communication
  - Know-how and resources
  - Data quality and IT systems

4.3 Principal ICAAP requirements

4.4 Risk indicators
- 4.4.1 Credit risk indicators
- 4.4.2 Market risks in the trading book, foreign exchange risks and the overall bank level
- 4.4.3 Interest rate risk in the banking book (IRRBB)
- 4.4.4 Operational risk indicators

4.5 Documentation requirements

4.6 Outline of Comprehensive Capital Analysis and Review (CCAR)

4.7 Outline of Bank of England's Prudential Regulation Authority (PRA) and European Banking Authority (EBA) stress testing requirements.

5. Discuss the ICAAP process using a worked example of a presentation, including:

5.1 Components of the internal capital assessment

5.2 The MIRA
- 5.2.1 Capital treatments of material risks
- 5.2.2 Pillar II add-on
- 5.2.3 Operational risk
  - ICAAP approach

6. Describe and discuss various methods of stress testing, including:

   6.1 ICAAP stress testing framework: worked example
   6.2 Impact of Basel II / CRDIV capital buffers

7. Demonstrate knowledge and understanding of the dividend policy

8. Discuss internal capital assessment by referring to a case study, including:

   8.1 Example quantitative output
   8.2 Assessment of capital buffers
   8.3 Summary of management actions in stress

12. Demonstrate knowledge and understanding of a typical corporate governance structure for a commercial banking operation, including one in South Africa

1. Demonstrate knowledge and understanding of principles of sound corporate governance within banking

2. Demonstrate knowledge and understanding of the factors influencing the shape of corporate governance structures in South African banking

3. Discuss who the key role players are in a typical governance structure within South African banking, including:

   3.1 The regulator(s)
   3.2 The shareholders
   3.3 The board
   3.4 Management and management committees
   3.5 Board skills and knowledge

4. Demonstrate knowledge and understanding of board and management governance structures, including:

   4.1 Board
   4.2 Management
      4.2.1 Control functions
      4.2.2 Governance (related) committees

5. Demonstrate knowledge and understanding of ALCO mandate and structure

6. Discuss the role of corporate governance in banking failures

13. Demonstrate knowledge and understanding of bank strategy setting and implementation process

1. Describe and discuss the strategic planning process, including:

   1.1 Considerations in the development of strategy

1.1.1 Stakeholder expectations
1.1.2 The macro (economic) and micro (market and market segment) environment
1.1.3 The competitive landscape
1.1.4 Internal "core competencies"
1.1.5 Resource capacity
1.1.6 Organisational structure
1.1.7 Capital and funding
1.1.8 Risk appetite

2. Demonstrate knowledge and understanding of strategy and the bank business model, including:

2.1 Universal objectives
2.2 Bank strategy
2.3 Bank strategy setting cycle
2.4 Strategy setting: Sustainable banking through the cycle
2.5 Capital management as part of the strategic plan
2.6 Typical elements of a bank's strategic plan
2.6.1 Objectives
2.6.2 Financial targets and metrics (KPI's)
2.7 Strategy as a dynamic process

3. Discuss how best to evaluate the strategic plan

14. Complex problem solving

1. Solve complex problems associated with the following issues:

1.1 Credit risk measurement and management
1.2 Operational risk measurement and management
1.3 Liquidity risk management
1.4 Interest rate risk measurement and management
1.5 Market risk measurement and management
1.6 Funding policy and strategy
1.7 Capital allocation and management, including ICAAP
1.8 Risk (capital adequacy, liquidity, leverage, credit, operational, market, non-traded market) and balance sheet management
1.9 Risk adjusted performance measurement
1.10 Business Development strategy and process
1.11 Pricing strategy and process
1.12 Investment Banking & Corporate Finance activities
1.13 Corporate Banking activities
1.14 Retail Banking activities
1.15 Corporate Governance including ALCO process and framework
1.16 Overall organisational structure

2. Through analysis, integration and critically evaluating results, draw conclusions and make recommendations particularly with regard to the bank's optimal strategy.

3. Analyse various case studies and solve complex problems associated with the cases.

End of Syllabus