EXAMINATION

26 October 2017

Subject F206 – Banking
Fellowship Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Candidates will be issued with instructions to log-in using a password (which you will be provided with at the exam center).*

2. *Candidates are required to submit their answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*

3. *Save your work continuously throughout the exam, on your computer's hard drive with which you have been provided.*

4. *You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*

5. *You must not start typing your answers until instructed to do so by the invigilator/supervisor.*

6. *Mark allocations are shown in brackets on exam papers.*

7. *Attempt all questions, beginning your answer to each question on a new page.*

8. *Candidates should show calculations where this is appropriate.*

Note: The Actuarial Society of South Africa will not be held responsible for loss of data where candidates have not followed instructions as set out above.

AT THE END OF THE EXAMINATION
Save your answers on the hard drive.

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.

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QUESTION 1

A medium-sized South African bank is developing new credit risk impairment models in preparation for IFRS 9. It currently offers only Retail lending products, and its key exposure is to Retail Mortgages and Credit Cards. The Bank has existing Basel models in place and is currently AIRB accredited.

i. Describe the key reasons why accounting and regulatory bodies undertook the development of IFRS 9 to replace the current standard, IAS 39. [4]

ii. Describe the key changes to the provisioning model under IFRS 9, as well as key challenges in developing these components in respect of the Bank's portfolio. [9]

iii. The Bank's CFO has requested that the model development team perform an initial impact assessment on its current provisioning levels (excluding defaulted assets) as a result of the adoption of IFRS 9.

   a. Determine the 12 month (Stage 1) and lifetime (Stage 2) provisions for a Mortgage product. The mortgage loan has the following characteristics:

      - Current rating of 3
      - Remaining term of 4 years
      - Effective Interest Rate of 10% p.a.
      - Current outstanding balance of R 1,000,000

Note: No staging is required to be performed. Candidates should assume that the entire loan is in Stage 1 and 2 respectively for the calculations. You may also assume that the loan will be settled in four equal instalments.

Marginal Probability of Default (years from calculation date)										
Rating Grade	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	0.100	0.070	0.050	0.040	0.035	0.032	0.030	0.028	0.025	0.022
2	0.115	0.081	0.058	0.046	0.040	0.037	0.035	0.032	0.029	0.025
3	0.132	0.093	0.066	0.053	0.046	0.042	0.040	0.037	0.033	0.029
4	0.152	0.106	0.076	0.061	0.053	0.049	0.046	0.043	0.038	0.033
5	0.175	0.122	0.087	0.070	0.061	0.056	0.052	0.049	0.044	0.038

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Years from calculation date	1	2	3	4	5	6	7	8	9	10
Loss Given Default	45%	46%	47%	46%	45%	45%	45%	45%	45%	45%
Forward Looking Scalar	1.05	1.1	1.15	1.1	1.05	1	1	1	1	1

[6]

b. Comment on the results of your calculation. [4]

c. The Bank has completed the initial impact assessment for its two portfolios. Details are provided in the table below. The CFO has asked you to independently review the results and comment on the implications for the Bank. Outline the points you would make in your report. [12]

				Before Forward Looking		After Forward Looking	
Portfolio	**Exposure**	**IAS 39 Provision**	**Basel Expected Loss**	**Stage 1 Expected Credit Loss**	**Stage 2 Expected Credit Loss**	**Stage 1 Expected Credit Loss**	**Stage 2 Expected Credit Loss**
Mortgages	2,500,000	190,000	220,000	190,000	300,000	209,000	365,000
Credit Cards	1,000,000	150,000	300,000	280,000	250,000	308,000	340,000
Total	3,500,000	340,000	520,000	470,000	550,000	517,000	705,000

iv. Explain potential ways in which the Bank could reduce its IFRS 9 Expect Credit Losses. [8]

In order to incorporate forward looking information into the provisions, the Bank has developed the following two macroeconomic linkage models.

$$PD_{Mortgages} = 0.02 + 0.07.(\Delta GDP) + 0.2.(\Delta PPI) + \varepsilon$$

$$PD_{Credit\ Cards} = 0.06 - 0.4.(\Delta GDP) + 0.4.(lagUE) + \varepsilon$$

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The following variables have been used:

$PD_{Mortgages}$ is the expected probability of default of the mortgage portfolio at a forward looking time period.

$PD_{Credit\ Cards}$ is the expected probability of default of the credit card portfolio at a forward looking time period.

ΔGDP is the corresponding expected change in gross domestic product.

ΔPPI is the corresponding expected change in a property price index.

$lagUE$ is a lagged level of unemployment.

ε is a random error term.

v. Comment on the above macroeconomic linkage models. [7]

vi. Describe how the Bank can use a management overlay framework for dealing with risk not captured adequately in the models.
[5]

[Total 55]

QUESTION 2

You are the Analytics head for a large South African Bank. Your bank holds approximately 20% market share across all products in its suite. The bank currently has limited channel presence. All business is conducted through the branch network or the ATM network. The ATM network is predominantly used as a mechanism for disbursing cash.

The CEO of the bank has recently worked through the financials of the competitor banks and has noticed that your bank's cost base is extremely high relative to peers. As a result, he has asked you to draft a business case for migrating your customers to cheaper channels.

i. Explain what you would take into consideration in the business case. [16]

After 3 years of development and a significant investment into the bank's migration project, the CEO is very disappointed with the outcomes to date. Normalising for the development costs in the bank's financial statements for the last 3 years, he has noticed very little improvement in the cost base of the bank. He has tasked you with investigating why this is the case and has asked for proposals to try to improve this situation.

ii. Outline the points you would make to the CEO. [12]

[Total 28]

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QUESTION 3

You are an actuary advising a small bank in a developing country. Loose fiscal policy has resulted in strain on government finances and inflation has been rising as a result. Liquidity is strained and two small banks have recently entered into resolution. The local regulator has adopted a regulatory approach that is similar to Basel II standardized approaches for risk measurement purposes.

The government has recently defaulted on one of its dollar bond issuances.

The financial director has requested you to brief the Board on sovereign risk for local and foreign currency exposures. In your briefing discussions he explained that the Board has particular concern in understanding and mitigating the impact of the bond default on the liquidity and capital position of the bank

i. Describe the points you would make to the Board. [12]

One of the regulatory measures applied by the Central Bank is cash reserves. The cash reserve requirement has historically been set at 5% of liabilities. After a significant currency deterioration, the Central Bank increased the cash reserve requirements on local currency liabilities to 10% and on foreign currency liabilities to 20%.

ii. Explain reasons why the Central Bank may have chosen this course of action. [5]

[Total 17]

[GRAND TOTAL 100]

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END OF EXAMINATION

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