EXAMINATION

26 May 2025 (am)

Subject F107|B100 — Banking Fellowship Applications

Examination time: *Three hours and fifteen minutes (includes reading time)*

Upload time: *Five minutes*

[Total time on examination countdown clock: Three hours and twenty minutes]

Total marks: *100*

INSTRUCTIONS TO THE CANDIDATE

Failure to adhere to any of these instructions could incur examination sanctions including disqualification from the examination.

1. *The question paper is only available on the ASSA Exam Platform as a PDF download and may not be printed. Copy/paste of questions or parts thereof is allowed from the question paper to your Word answer document only.*

2. *Download the Word answer document template from the ASSA Exam Platform. Save this Word answer document on your desktop using your* ***full Candidate Number****, which starts with "F107/B100-exa-2025-…", as filename.* ***Do not name your answer script with your name or member number.***

3. *You are required to submit your answers in Word format ONLY using this document. No answers in any other format (e.g. handwritten) will be accepted. Save work regularly.*

4. *Ensure that your* ***full Candidate Number*** *appears in the "header" of your Word answer document. [Double-click on the header at the top of the Word document, input your Candidate Number only in the header, then press "Esc" to close the header.]* ***Do not use your name or member number anywhere in your Word answer document.***

5. *You may not access any file from your computer, use any other computer software (e.g., Email or Excel), or open any other browser, collaboration tools or AI tools (e.g. Copilot, ChatGPT etc.) during the examination. Nor may you use Grammarly, Grammarly Premium or similar add-ins. Microsoft Word spellcheck is allowed.*

6. *You are not permitted to bring any other material into the examination (e.g. a Formulae and Tables book). Any such information/material that may be required will be provided to you in the examination.*

7. *You are strongly encouraged to use the first 15 minutes as reading time only, however, you may start answering the paper whenever you are ready.*

8. *Mark allocations are shown in brackets.*

9. *Attempt all questions, starting each on a new page (as provided for in the Word answer document).*

10. *Show calculations where appropriate. You may not use other materials except blank paper for calculations. You may use a calculator from the ASSA-approved list only.*

11. *At the end of the three hours and 15 minutes examination time, you must stop writing and start uploading your Word answer document.* ***You may NOT continue to write during the five minutes upload time.***

12. *Upload your Word answer document only onto the ASSA Exam Platform. Once you have uploaded your document, you must click on* ***Finish Attempt*** *to save your document. You will still be allowed to go back and check that you have uploaded the correct version of your answer script (****Review Attempt****) if you have time. Remember that you may not type answers in the last 5 minutes of upload time.*

13. *Once you are satisfied with your uploaded document, click* ***Finish Attempt*** *and* ***Finish all and Submit****. Once you have submitted, you will not be able to make any changes.*

14. ***You must submit your Word answer document BEFORE the time on your examination countdown clock runs out.***

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. The onus remains on you to read and implement all examination instructions.

END OF INSTRUCTIONS

QUESTION 1

i. Briefly outline the three Pillars under the Basel regulatory framework.

[3]

Goku Bank is a retail bank with a branch network which also relies on digital platforms and online services. Due to increasing changes in technology and market scrutiny, the regulator is evaluating its disclosure requirements. The regulator is considering creating a broader requirement relating to cyber risk reporting and disclosure.

ii. Outline the potential reasons behind the regulator's decision.

[2]

iii. Outline the types of cyber risk information that the regulator should consider requiring banks to disclose and outline the insights that this information would provide.

[3]

To minimise cyber risks, a colleague suggested that a customer's profile would be locked if a login was attempted on a new computer or device. The only way to unlock the profile would be to visit a bank branch.

iv. Describe the advantages and disadvantages of the suggestion to lock the online profile of a customer.

[5]

[Total 13]

QUESTION 2

Monarch Energy Solutions (MES) is an alternative energy provider that owns and operates solar farms and sells the power generated through these farms to corporates under power purchase agreements (PPAs). MES is initiating a project to build additional solar farms to meet increased demand. Fibonacci Bank (FB), an investment bank, has been approached by MES for support in obtaining funding for the project.

i. Describe the services that FB could provide to MES within the context of the planned project.

[4]

MES has decided to fund the solar farm development project through a project finance loan made to a Special Purpose Vehicle (SPV).

ii. Explain the use of an SPV in project finance.

[3]

iii. Outline factors that FB should consider in assessing expected repayment and, in the event of default, prospects for recovery for the proposed project finance arrangement.

[7]

[Total 14]

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QUESTION 3

THD Bank is a financial institution offering a range of services across the country of Actuaria, including retail banking and business banking products that include lending, transactional, insurance, and investment products. They have recently identified climate change as a significant and growing risk factor impacting their operations.

You are a consultant hired by THD Bank to assess the potential impacts of climate change on their operations and recommend strategies for mitigating these risks.

i. Define the term operational risk and provide an example of an operational risk external event in the context of a bank.

[1]

ii. Describe potential operational risks that THD Bank might face due to climate risks. For each risk, discuss how it could impact the bank's ability to continue operations.

[3]

iii. Suggest controls that can be implemented to reduce the impact of physical climate risk on the operational risks of a bank.

[5]

A colleague has suggested that the bank start progressing toward a fully digital operation. The proposal includes removing branches and the ATM footprint in high flood risk areas around the coast.

iv. Discuss the advantages and disadvantages of the proposal to remove this physical footprint.

[5]

v. Explain why a bank would measure and aim to reduce their own emissions (i.e. emissions that result directly from their ongoing operations), by making reference to the different components of transition risk.

[4]

[Total 18]

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QUESTION 4

i. Outline the differences between the Standardised Approach (SA) and the Internal Ratings-Based (IRB) Approach in credit risk assessment, detailing the implications on capital requirements and risk sensitivity.

[6]

ii. Discuss the benefits and challenges a bank may face when transitioning from SA to IRB, including regulatory approval requirements and capital savings potential.

[6]

A bank has recently transitioned from the Standardised Approach to the Internal Ratings-Based Approach. The bank had chosen to use point in time (PIT) parameters for their probability of default (PD) and loss given default (LGD) credit risk models.

During an economic downturn, the bank's internal credit risk models indicate a sharp rise in PD and LGD, leading to an increase in capital requirements.

iii. Evaluate how the dynamic nature of this approach may impact a bank's capital stability during different phases of the economic cycle. Suggest measures the bank could implement to mitigate potential capital volatility.

[5]

[Total 17]

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QUESTION 5

Journey Financial Services (JFS) is a lending house that provides a variety of term loan products to individuals and small businesses. JFS is looking to expand the size of its lending portfolios and would need to raise additional funding to do so.

i. Describe the various sources of non-capital funds that banks can use to fund lending operations.

[5]

JFS is reviewing its current funding mix and considering options available for raising additional funding to support further lending. The following information has been extracted from JFS's balance sheet:

Balance Sheet (L$ million)

Assets	
Cash and cash equivalents	2 170
Investment securities	2 440
Loans and advances	15 590
Property and equipment	35
Other assets	305
Total assets	**20 540**
Liabilities	
Wholesale funding	16 670
Corporate bonds	880
Other liabilities	1 230
Total liabilities	**18 780**
Total equity	**1 760**
Total equity and liabilities	**20 540**

ii. Comment on JFS's current mix of funding and options available for raising additional funding.

[6]

JFS is considering applying for a banking license to enable the use of customer deposits to fund further lending activities.

iii. Outline the advantages and disadvantages of this suggestion.

[7]

[Total 18]

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QUESTION 6

Johto Bank is a development bank operating in the country of Actuaria. They offer services to public sector entities including: schools, parks and municipalities. The bank is currently reviewing their current scorecard and credit risk assessment.

i. Outline the reasons credit ratings are important to public sector entities.

[2]

You are an actuarial consultant working at Johto Bank. The bank is currently reviewing an application for a loan to a local municipality.

For lending to municipalities, Johto Bank utilises a mix of a quantitative and qualitative scorecards for the credit risk assessment. The credit risk rating assessments follow the following process:

1. Consolidate the financial ratios and calculate a score for each ratio using a lookup table.
2. Weight the scores according to the scorecard to get a final quantitative score.
3. Collect information for the qualitative scorecard and generate a qualitative score.
4. Combine the quantitative score and the qualitative score to generate a credit risk score.
5. Transform the credit risk score into a PD (probability of default) using a function.

ii. Outline factors that could be considered in the qualitative scorecard.

[2]

The breakdown of the quantitative scorecard is shown below:

Financial Ratio	**Definition**	**Financial Ratio score**	**Weight**
Current ratio	$\frac{Current\ Assets}{Current\ Liabilities}$	Determined using a lookup table	50%
Leverage	$\frac{Total\ Liabilities}{Total\ Assets}$	Determined using a lookup table	30%
Return on Assets	$\frac{Surplus}{Total\ Assets}$	Determined using a lookup table	20%

iii. Comment on the choice of financial ratios included in the scorecard.

[3]

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A 'government grant' could be defined as: an allocation of funds from national government to a municipality to assist municipalities to provide basic services, address infrastructure issues, or other specific purposes.

A public sector credit analyst has suggested the following ratio to enhance the quantitative scorecard:

- Grants to revenue:

$$\frac{Grants}{Total\ revenue}$$

iv. Outline possible reasons for including the additional ratio.

[2]

v. Discuss additional financial ratios or criteria that could be used in the quantitative scorecard.

[4]

The credit manager has asked you to investigate the change in the scorecard and the overall credit risk assessment.

The information on the rating and updated scorecard are shown below:

Financial Ratio	**Calculation**	**Weight**
Current ratio	$\frac{Current\ Assets}{Current\ Liabilities}$	30%
Leverage	$\frac{Total\ Liabilities}{Total\ Assets}$	30%
Return on Assets	$\frac{Surplus}{Total\ Assets}$	20%
Grants to Revenue	$\frac{Grants}{Total\ revenue}$	20%

The credit risk rating PD (probability of default) estimate is calculated using the following:

$$PD_i = \frac{1}{e^{a \times credit\ risk\ score_i + b}}$$

where:
PD_i is the estimated PD for customer i;
a, b are calibrated constants;
$credit\ risk\ score_i$ is calculated using the following components:

$$credit\ risk\ score_i = w \times (QuantS_i) + (1 - w) \times (QualS_i)$$

w is the weight factor $\in [0,1]$;
$QuantS_i$ is the weighted average financial ratio score from the quantitative scorecard for customer i, $QuantS_i \in [0,100]$;
$QualS_i$ is the score output from the qualitative scorecard for customer i, $QualS_i \in [0,100]$.

Parameters	**a**: 0.1 **b**: 0.7 ***w***: 0.5
Selected Customer information (L$)	
Total Revenue	150 000
Total Expenses	100 000
Total Surplus	40 000
Current Assets	240 000
Current Liabilities	180 000
Total Assets	1 000 000
Total Liabilities	240 000
Total Grants	40 000
Qualitative score (*QualS*)	52

Financial Ratio Score Lookup Table

Criteria					Score
		Current Ratio	≤	1	20
1	<	Current Ratio	≤	1.5	40
1.5	<	Current Ratio	≤	2	60
2	<	Current Ratio	≤	2.5	80
		Current Ratio	>	2.5	100
Criteria					**Score**
		Return on Assets	≤	0.01	20
0.01	<	Return on Assets	≤	0.02	40
0.02	<	Return on Assets	≤	0.1	60
0.1	<	Return on Assets	≤	0.2	80
		Return on Assets	>	0.2	100

Criteria					Score
		Leverage	≤	0.1	100
0.1	<	Leverage	≤	0.125	80
0.125	<	Leverage	≤	0.16	60
0.16	<	Leverage	≤	0.25	40
		Leverage	>	0.25	20
Criteria					**Score**
		Grants to Revenue	≤	0.1	100
0.1	<	Grants to Revenue	≤	0.2	80
0.2	<	Grants to Revenue	≤	0.5	60
0.5	<	Grants to Revenue	≤	0.75	40
		Grants to Revenue	>	0.75	20

vi. Discuss the changes to this customer's credit risk rating assessment caused by using the new scorecard. Include commentary on the reasonableness of the new grants to revenue ratio, and support your answer with calculations.

[7]

[Total 20]

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END OF PAPER

