EXAMINATION

7 June 2010 (am)

Subject F103 — General Insurance Specialist Technical

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

2. *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.

3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all **9(nine)** questions, beginning your answer to each question on a separate sheet.*

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

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

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.

QUESTION 1

The company you work for, Pomerania Insurance, currently writes conventional comprehensive private motor insurance business. The company is considering launching a new private motor insurance product aimed at the young (less than 25 years) driver market. The marketing team is quite excited about the product because unlike your competitors who rely on the use of a limited number of conventional rating factors when pricing their products, this new product makes use of a number of risk factors.

i. State four key risk factors that you consider should be used in pricing private motor insurance business for the under age 25 driver market. **[2]**

ii. Discuss the key challenges that the company will face in designing and launching this product. **[4]**

Total [6]

QUESTION 2

Your company's free asset position has been declining (worsening) for the past three years. The business currently on the books and the business expected to be written in the foreseeable future is profitable. The CEO has just come back from a holiday in Utopia, a small island that offers very attractive tax regimes for reinsurance companies and has a very relaxed financial supervisory regime. He has given you the business cards of a couple of reinsurance executives from Utopia and asked you to get in touch with them for assistance with the poor free asset position.

Discuss the various mechanisms available for collaborating with Utopian reinsurers in order to bolster your company's free asset position. **[5]**

QUESTION 3

Five years ago you were responsible for pricing a brand new Product Liability policy that your company was introducing to the local vehicle insurance market.

In light of the heavy losses suffered on the product, the CEO has asked you to carry out an investigation into the differences between the actual claims experience to that used in your pricing basis. Your results reveal a startling difference.

Describe eight possible reasons for the observed difference.

[8]

PLEASE TURN OVER

QUESTION 4

The following ratios have been calculated from the financial statements of a very large unlisted insurer in your market.

YEAR	2009	2008	2007	2006	2005	2004
Percentage Reinsured	15%	47%	52%	47%	43%	45%
Solvency Margin	38%	47%	51%	62%	74%	86%
Profit Margin	18%	8%	10%	9%	7%	8%

i. Comment on the insurer's reinsurance strategy. **[3]**

ii. Discuss the most likely causes of the steady decline in the company's financial strength and discuss the possible implications of this trend. **[4]**

Total [7]

QUESTION 5

Describe the consequences for a general insurance company of setting inappropriate levels of technical reserves. **[4]**

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QUESTION 6

You have just started working in the actuarial team of an insurer that specialises in insuring large fleets of vehicles. Your company only offers comprehensive insurance and this has been the case for the past five years. Broker commission is 12.5% of office premium. One of your largest brokers has called to request a renewal premium for a fleet of delivery vans for a local recycling company. He provides the following claims information.

Year of Cover	Average Number of Vans	Number of Claims	Own Damage Claims		Third Party Claims		All Claims Reported
			Paid	O/S	Paid	O/S	
2005-2006	540	300	183,470	-	128,150	150,000	461,620
2006-2007	620	400	211,830	-	208,460	200,000	620,290
2007-2008	690	390	402,740	-	128,590	2,250,000	2,781,330
2008-2009	750	490	141,420	-	119,990	50,000	311,410
2009-2010	840	440	419,820	98,950	85,990	297,500	902,260
TOTALS	3,440	2,020	1,359,280	98,950	671,180	2,947,500	5,076,910

The broker tells you that he has already sourced a quote from one of your competitors which is lower than the current premium. The renewal date for this policy is 1 June 2010. The broker also informs you that due to time pressure, his assistant was only able to compile data up to 30 April 2010. The broker also advises you that the 2007-2008 data includes one large claim, whose estimated value is R 1,750,000. The fleet currently has 870 delivery vans.

You have analysed the experience of all the motor fleet business written in recent years and expect that the proportion of total claims costs which fall in the band of cost above R 250,000 ("large claims") to be about 8.6%. Your company further estimates that the average reporting delay on this type of business is 2 weeks and that the normal expense ratio is 10% (excluding commission). The normal contingency loading is 5% of risk premium and the normal profit loading is 10% of office premium.

Technical reserves typically amount to 21 months' premiums, and agents' balances to 3 months' premiums, giving investible funds of 18 months' premiums.
Claims inflation has been fairly constant at 5% for the past decade and is not expected to change in the next two years.

Prepare a quotation using the above information and state any assumptions that you make. **[14]**

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QUESTION 7

You are the Actuary of a South African specialised general insurance company which has written just two classes of business for the past 10 years, namely Industrial Property and Industrial Third-party Liability insurance. One of the non-executive directors with very little insurance knowledge is curious about the investment strategy of the company.

The following items have been pretty constant for each of the last 10 years' written business:

CLASS:	**Property**	**Liability**
Premium income split	70%	30%
Ultimate Loss Ratio	75%	100%
Total Expense + Commission Ratio	30%	20%
Investment Return: Insurance Funds	8%	
Investment Return: Shareholder Funds	9%	
Tax Rate	33%	
Annual % increase in premium income	10%	
Shareholders' Funds at end of year as a % of premium written in the year	50%	

Payment Pattern (%)	**Yr**	1	2	3	4	5	6	7	8
Household Property		55	30	15					
Employer's Liability		5	10	15	20	20	15	10	5

The gross written premium in 2009 was R 400 million (all written locally). Premium is written and received on 1 January each year. You may also assume that expenses and commission are also paid on 1 January, and that dividends, tax and claim payments are made on 31 December each year.

i. The non-executive director has asked you to draft a report describing the investment strategy you would recommend for the above company. Draft your report. **[15]**

ii. After reading the report, another director with a non-insurance background points out that since the 2010 Financials show a positive cashflow, all assets should be invested in equities and property, since assets will never need to be realised to meet liabilities. Outline your reply to this director. **[3]**

[Total 18]

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QUESTION 8

i. Sinatra Insurance is a local general insurance company that writes various lines of business. The CEO has asked you to carry out an overhaul of the methods used to estimate ultimate claims costs. State the factors that you would consider when deciding which method to use.

[4]

ii. After much discussion and debate, you agree to use the average cost per claim method to calculate outstanding claims reserves for the Motor business. The following data is available:

Cumulative claims amounts paid by the end of each development year (R millions):

CUMULATIVE CLAIM AMOUNTS (R'000s)					
	Development Year				
Accident Year	0	1	2	3	4
2005	306	384	420	436	442
2006	297	386	430	454	
2007	322	391	448		
2008	275	347			
2009	335				

Cumulative number of claims handled by the end of each development year:

CUMULATIVE NUMBER OF CLAIMS					
	Development Year				
Accident Year	0	1	2	3	4
2005	435	527	567	585	588
2006	497	598	636	656	
2007	615	752	807		
2008	520	618			
2009	606				

Past inflation (mid-year to mid-year)

PAST INFLATION (mid-year to mid-year)	
2005-2006	7%
2006-2007	6%
2007-2008	6%
2008-2009	7%

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Future inflation 5% per annum.

Assume claims are paid on average halfway through the year.

Calculate the undiscounted reserve at the end of 2009, stating any assumptions made.

[14]

[Total 18]

QUESTION 9

You have been provided with the following financial information for proprietary insurance companies A, B and C for the accounting year 2009. Amounts are given in R million. All business is annual contracts with premiums payable annually in advance.

	Company		
	A	B	C
Gross Written Premium (GWP)	60	1000	200
Additional Unexpired Risk reserve c/f	20	0	0
Gross Outstanding Claims b/f	10	500	680
Gross Claims Paid	40	600	100
Gross Outstanding Claims c/f	30	400	700
Non Acquisition Expenses	5	125	30
Investment Income	5	150	30
Current Assets (at year end)	5	50	25
Current Liabilities (at year end)	12	60	30
Total Investments (at year end)	100	1700	950
Share Capital (at year end)	10	200	90
Acquisition Costs as a % of GWP	10	10	15

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i. Construct the balance sheet for each of the three companies as at 31 December 2009, stating any assumptions that you make. **[5]**

ii. Based on the data provided calculate the following statistics for each of the companies, stating any additional assumptions not made in part (i).

   a. Solvency Ratio
   b. Claim Ratio
   c. Return on Capital Employed **[5]**

iii. Compare the results derived in part (ii) for the three companies, and briefly discuss possible reasons for the differences. **[5]**

iv. Define five other insurance related ratios (i.e. in addition to those in part (ii)) which may be used when comparing the companies' published accounts and state their objectives.

[5]

[Total 20]

END OF PAPER

