

Actuarial Society of South Africa

EXAMINATION

18 May 2017

Subject F201 – Health and Care

Fellowship Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

- 1. You will receive instructions to log in using a password which will be issued to you at the exam center.*
- 2. You are required to submit your answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the exam.*
- 3. Save your work throughout the exam on your computer's hard drive.*
- 4. You have 15 minutes at the start of the exam 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 both questions, beginning your answer to each question on a new page.*
- 8. You 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.

Hand in your question paper with any additional sheets firmly attached.

<p>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.</p>

QUESTION 1

- i. List the financial burdens that could be caused to oneself by adverse changes in one's own health due to either sickness or injury (excluding death). [4]
- ii. List the types of protection that exist in South Africa against medical expenses caused by adverse changes in one's own health due to either sickness or injury (excluding death). Exclude any fixed-amount insurance benefits from your answer. [3]
- iii. Outline briefly the typical benefits that are payable under various insurance products that contain disability as the insurable event. [10]

Ostrich Manufacturing, a large manufacturing company, has private primary healthcare cover for its employees that earn less than R10,000 per month. Comfort is a financial services provider group that includes an accredited medical scheme administrator, a managed care provider and a health insurance product provider within its corporate structure. Ostrich obtains the mentioned cover through one of Comfort's insurance products, which is exempt from requirements of the Medical Schemes Act. The product provides the following benefits for which it negotiates rates with its networks of providers:

Health care service from provider network	Benefit	Negotiated rate
General practitioner visits	4 visits per beneficiary per year	R240 per consultation
Specialist visits	2 visits per family per year	R450 per consultation
Prescribed acute medicine	R800 per family per year	Not applicable

The following table gives the premiums paid by Ostrich, as well as the average number of covered beneficiaries of each type, for the covered employees and their families:

Beneficiary type	Premium per beneficiary per month	Average number of beneficiaries per family
Employee	R259	1
Spouse (maximum 2)	R189	0.84
Child (maximum 4)	R99	2.08

REMEMBER TO SAVE

PLEASE TURN OVER

The average monthly salary of the covered employees is R9,216, and no employee earns less than R6,180 per month. There were families of the maximum family size that utilised their full benefit entitlement in the previous year. The average family size and composition have been stable for the last couple of years.

- iv. Describe the provider reimbursement model that the format of the negotiated rates with doctors implies, and the type of risk that is transferred to the doctors under this model. [1]

New regulations have recently been passed under which this product will no longer qualify for exemption from the Medical Schemes Act. Ostrich wants to continue to provide protection against primary care expenses at private providers for its employees and their eligible family members.

One of Ostrich's senior managers suggested that Ostrich grant once-off salary increases, based on the benefit utilisation per family in the year preceding the date of the salary increase, to compensate the affected employees for the product no longer being in place. In his opinion this solution allows the company to assert that no employee would be any worse off than under the insurance product.

- v. Discuss how the benefit utilisation for the previous year may be used to determine the salary increases and the resulting cost and risk implications of this suggestion compared to the previous year, both to Ostrich and the affected employees, with specific reference to the assertion that no employee would be any worse off.

You may assume that Ostrich has access to the negotiated rates and employees' benefit usage data per family for the past year to determine remuneration increases. You may also disregard any tax implications, the implications on any post-retirement medical aid liability or the remuneration of future appointments.

[14]

- vi. Explain how you would expect the health care service utilisation and costs of the affected employees to change when they are compensated for a loss of their primary health care benefits under the insurance product by an increase in salary. [6]

[Total 38]

REMEMBER TO SAVE

PLEASE TURN OVER

QUESTION 2

- i. Describe the relationship between a company and its associated corporate restricted medical scheme with particular focus on the independence of the restricted medical scheme and the level of influence the company may have on it. [5]

DraperCorp owns several manufacturing businesses. The company currently employs approximately 9,500 people. The company has retained your services as consulting actuary, advising the company on its employee healthcare benefits strategy.

The company has the following medical scheme benefit arrangements:

- Membership of a medical scheme is only compulsory for employees who fall into a specified job grading band, or above.
- Unionised employees belong to a medical scheme associated with a trade union,
- Non-union employees have the option to join one of the following medical schemes:
 - DMed, a restricted medical scheme associated with DraperCorp or
 - Three open medical schemes.

These arrangements have been in place since 2005, when the company moved to a cost-to-company remuneration basis. Prior to 2005 membership of DMed was compulsory for all employees.

- ii. Outline the factors that may have influenced DraperCorp's decision to change its medical scheme arrangements in 2005. [5]

The following is a summary of DMed's experience over the past five years.

Year	2012	2013	2014	2015	2016	2017
Average number of members	8,760	8,070	7,630	7,540	7,500	
Average number of beneficiaries	18,596	17,786	17,470	17,198	17,150	
Average beneficiary age	36.3	38.0	39.7	40.1	39.6	
Pensioner ratio	10.7%	13.0%	14.7%	16.4%	16.9%	
Average contribution increase at the start of the year	9.0%	9.9%	8.9%	7.9%	12.9%	9.9%
Net healthcare result (R million)	3.50	5.20	-5.90	-7.40	-17.70	
Accumulated funds at the end of the year (R million)	120.13	127.21	122.18	131.09	137.58	
Solvency ratio	53.8%	51.7%	48.8%	47.0%	39.8%	

REMEMBER TO SAVE

PLEASE TURN OVER

DraperCorp has an unfunded post-retirement medical liability of R1.34 billion on its balance sheet. Employees who joined the company prior to 1995 are eligible for the subsidy, which is defined as “75% of the member’s contributions on DMed”.

Over the past decade, DraperCorp disposed of some non-core businesses. The rules of DMed were amended to allow the employees of these companies to continue as members of the scheme, including future new employees. As part of the sale agreements DraperCorp retained any PRMA liabilities associated with pensioners who had been employed by these businesses.

The following table summarises the membership of DMed for all participating employers, including the companies that had been sold.

Company	Number of members	Number of beneficiaries	Average beneficiary age	Pensioner ratio
DraperCorp.	4,000	8,120	47.1	28.4%
Holden Stores	3,000	7,770	32.0	6.3%
Miller Electronics	500	1,260	38.4	8.8%
Total	7,500	17,150	39.6	16.9%

- iii. Estimate the financial and demographic impact on DMed’s 2016 experience if Holden Stores had withdrawn from the scheme in that year. Show your calculation steps and state any assumptions you make. [8]
- iv. Discuss the appropriateness of the implicit and explicit assumptions you made to perform your estimate in (iii) above. [3]
- v. Comment on the implications for DraperCorp of the two other employers continuing to participate on DMed, including the level of influence that DraperCorp has on DMed and its experience. [6]

REMEMBER TO SAVE

PLEASE TURN OVER

One of the proposals that DraperCorp is considering is to make a series of equal annual cash grants to DMed over the next five years. Management expects that this will allow the scheme to pass lower contribution increases in future, which will help it to manage the size of its PRMA liability.

vi. Discuss the merits of this proposal. [9]

DMed has proposed that membership of DMed be made compulsory for all new employees in the higher job grades joining DraperCorp from January 2018 onwards. The management team has asked you to model the impact of such a policy on the company's PRMA liability.

You already have a functional PRMA liability valuation model and DMed has agreed to provide you with all the information you require.

vii. Describe how you would construct a long-term projection model of DMed's experience to determine future contribution increases, including the data you will use. [14]

viii. Describe how you would calculate the impact of DMed's proposal on DraperCorp's PRMA liability. [12]

[Total 62]

[GRAND TOTAL 100]

REMEMBER TO SAVE

END OF EXAMINATION