

**Actuarial Society of South Africa**  
**EXAMINATION**

18 May 2018

**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 centre.*
- 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.*
- 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.**

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

SuperMed is a self-administered open medical scheme that has experienced overall net membership losses since 2013. Statutory reserves as at the end of 2017 declined to 24%.

A new Board of Trustees has been elected and their priority is to address the deteriorating financial position of the Scheme while increasing membership. Their goal is to reach 100,000 members and a net surplus position by 2020. You are the actuary advising the Board of Trustees on their strategy to reach this goal.

The Scheme's experience at a net healthcare result level over the past five years is summarised below from the Annual Financial Statements for each year.

Benefit Option	Net healthcare result as a percentage of risk contributions				
	2013	2014	2015	2016	2017
1: Comprehensive savings, above threshold benefits	11%	9%	-11%	-16%	-19%
2: Comprehensive family benefits	8%	7%	-4%	-4%	-20%
3: Traditional network benefits	11%	10%	0.3%	0.3%	-2%
4: Savings, PMB and other chronic (non CDLs)	14%	13%	-12%	-7%	-9%
5: PMB and other chronic (non CDLs) (at network)	19%	21%	-5%	-10%	-2%
6: PMB only (at network)	-	-	-10%	7%	29%
<b>Scheme</b>	<b>12%</b>	<b>11%</b>	<b>-4%</b>	<b>-4%</b>	<b>-6%</b>

Summary information for each option as at 31 December 2017 is given below:

Option	Average beneficiary age	5-year average membership growth	Percentage group business	Members	Reimbursement rate as % of Scheme tariff
1	54	-4%	10%	2,000	400%
2	45	-7%	50%	5,000	300%
3	36	-0.5%	60%	27,000	300%
4	46	0%	20%	8,000	200%
5	32	2%	40%	23,000	100%
6	28	20%	80%	1,000	100%
<b>Scheme</b>	<b>37</b>			<b>66,000</b>	

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- i. State the requirements of the Medical Schemes Act (No. 131 of 1998) for the registration of new benefit options. [3]
- ii. You have been asked by the Board of Trustees to set the assumptions and prepare a model for financial projections for their 2020 strategy.

Describe the investigations you will undertake to set these assumptions and develop your financial projection model. Apply the following themes, using the data provided above where appropriate:

- a. The competitive environment, both within SuperMed and across the market of open medical schemes [5]
- b. The net healthcare result of each benefit option (your answer should address each option separately and consider its sustainability) [14]
- c. Membership growth strategy [6]
- d. Scenarios relating to the 2020 strategy [5]
- e. Any other factors to be considered when performing the financial projections. [6]

Brokers currently enrol groups subject to maximum legislated underwriting provisions set out in the Medical Schemes Act. The Scheme is considering relaxing underwriting for group business that brokers bring in as a way for the Scheme to achieve their new business targets.

- iii. Discuss this proposal, including the risks and potential benefits to the medical scheme. [7]

During 2017, the brokers advising employer groups of SuperMed approached their clients to introduce a group health insurance product from 1 January 2018. The health insurance product offers cover for:

- specialist reimbursement above the scheme rate up to 500%;
- casualty cover;
- penalty cover for out of network utilisation;
- co-payment cover;
- hospital cash benefit and
- contribution waiver.

- iv. State the categories of health insurance products which are demarcated as not doing the business of a medical scheme, and the prescribed requirements for each category of product. [6]
- v. Discuss how increasing levels of uptake of this group health insurance product could affect the Scheme strategy. [8]

[Total: 60]

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## QUESTION 2

The Isle of Luna operates a national health system, assuming fiscal and administrative responsibility for the health care of all its citizens. There are no private hospitals or clinics as all health services are funded and run by government. Medical practitioners are all employed by the State. The country has one of the highest HIV prevalence rates in the world.

- i. Describe the various ways in which the government of the Isle of Luna can ration access to healthcare services and comment on the appropriateness of each method in this setting. [7]

The country has recently implemented HIV treatment guidelines that specify treatment initiation immediately on diagnosis rather than delayed treatment based on clinical criteria namely CD4 count.

- ii. Explain the impact of earlier treatment initiation on the:
- HIV prevalence rate,
  - HIV incidence rate,
  - Anti-Retroviral therapy (ART) treatment rate and
  - the corresponding costs for the country. [8]

The government is considering the creation of a private health sector within the existing healthcare sector to create additional capacity to service the healthcare needs of the population. The government have asked employers to come forward with suggested private healthcare provisioning and funding structures that substitute current government provision and funding. Two companies have submitted proposals to introduce privately owned and self-funded Health Maintenance Organisation (HMO) staff models at the large mining companies operating in the country. The mining companies will own the service infrastructure, deliver services, employ staff and provide the funding for the healthcare needs of their employees.

- Proposal A is supplementary to state provision based on a risk adjusted capitation system with a performance-based payment for general practitioners employed by the HMO. Other services will continue to be provided by the state.
- Proposal B is substitutive to state provision with the same reimbursement model for general practitioners as proposal A, and case mix activity adjustment payment model for hospitals (including specialists and related medical services).

You have been appointed by the mining companies, who are the purchasers of healthcare on behalf of their employees and dependents, to evaluate the pricing of each proposal.

- iii. Outline the factors you would consider for assessing the pricing of each proposal. There is no fee for service data available. [10]

The government has now requested your advice on the implementation of the proposals.

- iv. Outline the factors you would consider for:
- The ways government can regulate the proposed HMO models [6]
  - Introducing capital requirements [9]

[Total 40]

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**END OF EXAMINATION**