Actuarial Society of South Africa

EXAMINATION

26 October 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 all three 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.

QUESTION 1

Typmed is a single option restricted medical scheme, which has been in operation for 20 years. Its benefit options do not contain medical savings accounts and its contributions are not income rated.

You have the following summarised management accounts and accompanying notes available for Typmed (financial amounts are in rand):

	January 2016 to March 2016 (inclusive)	**Full year 2016**	**January 2017 to March 2017 (inclusive)**
Average number of principal members over period	8 766	8 369	7 708
Average number of beneficiaries over period	15 783	15 069	13 862
Number of beneficiaries at end of period	15 640	14 162	13 707
Average beneficiary age over period	29.5	30.1	30.2
Contribution income	52 048 827	199 312 773	50 741 610
Net relevant healthcare expenditure (incl. IBNR)	(45 237 822)	(175 395 240)	(44 773 627)
Gross healthcare result	**6 811 005**	**23 917 533**	**5 967 983**
Administration fees	(6 468 734)	(24 701 619)	(6 029 279)
Other non-healthcare costs	(842 955)	(3 356 238)	(881 261)
Net healthcare result	**(500 684)**	**(4 140 324)**	**(942 557)**
Investment income	970 399	4 260 396	918 896
Net surplus/(deficit) for the period	**469 715**	**120 072**	**(23 661)**
Total members' funds at end of period		54 435 962	54 414 586
Accumulated funds (Regulation 29)			50 426 365
Statutory solvency ratio		25.4%	

You have also been given the following information:

- The average numbers of beneficiaries per month and members per month for the full year 2017 are projected to be 13 177 and 7 326 respectively.
- The average beneficiary age over 2017 is projected to be 30.5.

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- Based on claims seasonality investigations, the average healthcare expenditure per beneficiary per month for January to March 2017 is estimated to be 99% of the full-year average healthcare expenditure per beneficiary per month.
- Administration fees are contracted as a fixed amount per member per month.
- "Other non-healthcare costs" include fixed monthly expenses that constituted 90% of the first quarter amount; the remainder varies with the number of beneficiaries.
- Investment income is estimated at an effective rate of 7% per annum.
- The difference between the total members' funds and accumulated funds according to Regulation 29 is estimated to grow by 26% during 2017.

i. Calculate the amount of accumulated funds per Regulation 29 as at 31 December 2016, and state how the difference between the members' funds and net asset value arises. [1]

ii. Estimate Typmed's income statement for 2017 and solvency position as at 31 December 2017. Show your calculation steps and state any assumptions you make. [15]

iii. List ways in which Typmed can improve its projected solvency position at the end of 2017, and briefly discuss the difficulties each presents. [14]

[Total 30]

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QUESTION 2

A medical technology company has developed a new surgical device that can perform a specific elective surgical procedure in a non-invasive manner, resulting in fewer complications and faster recovery time compared to surgery that does not use the device. This company has been marketing the device to hospitals and surgeons.

You are an actuary employed by the administrator to a number of medical schemes including a small open medical scheme. The scheme does not cover the use of the device under current protocols. A hospital group has purchased these devices and they are now being used by surgeons operating in these hospitals. The hospital group has approached the medical scheme with a request to cover the cost of using the device as part of its protocols. The hospital group indicated in their submission that other medical schemes are offering this benefit.

The medical scheme's clinical committee has requested that the administrator advise them on the matter. You have been assigned the task of performing an analysis to determine whether the scheme should alter its protocols to include the use of the device. Your report must contain the following sections:

a. A summary of the data and other sources of information used in the analysis,
b. A discussion of the factors that need to be considered when performing the analysis and interpreting the results; and
c. A description of the types of analysis that you will perform.

i. Outline the points that you would include in your report under each of the three sections. [15]

The scheme has also requested you to advise it on alternative reimbursement arrangements for both procedures (i.e. with and without the device).

ii. Describe six different types of reimbursement models together with the risks that are transferred to the provider in each type and discuss whether each model is appropriate for funding the procedure. [10]

[Total 25]

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QUESTION 3

i. Describe the tax treatment of medical scheme contributions, risk benefits and medical savings accounts for the various stakeholders under the current South African tax regime. [9]

ii. Briefly describe the pillars used to describe the entitlements to risk benefits and the degree of risk pooling in social security systems. [5]

Nexus is a country that is comprised of several partially self-governing states under a central federal government. Healthcare in Nexus is provided by means of state run healthcare systems as well as private healthcare providers. The federal government of Nexus has just released a policy document describing proposed reforms of the healthcare system. The reforms will be achieved by means of three packages of legislative changes. All the items within a legislative reform package will be introduced to parliament at the same time.

Reform package A (will be introduced in 2018)		
Item	**Present state of affairs**	**Proposed reform**
A1	Means test threshold for free healthcare at public facilities.	Remove means test.
A2	Each state has its own public healthcare system.	Retain individual state public healthcare systems but impose federally mandated quality standards.
A3	Public healthcare is partially funded by an earmarked payroll tax levied by state governments.	The state payroll taxes will be abolished. The federal government will raise income tax and VAT rates. Each state will receive a public healthcare allocation from the federal budget.
A4	Health insurers may decline cover	Open enrolment

iii. Explain the impact that reform package A will have on social solidarity and access to healthcare, with specific reference to public healthcare services. [5]

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Reform package B (planned for 2023)		
Item	**Present state of affairs**	**Proposed reform**
B1	Voluntary private healthcare	Impose an annual federal penalty on all individuals earning above the income tax threshold who cannot prove credible health insurance coverage.
B2	Insurers may levy a once-off penalty on late joiners	Late joiner penalties will be abolished.
B3	No restrictions on waiting periods.	Maximum waiting periods
B4	No risk pooling	Introduce shared health insurance risk pools within every state.
B5	Essential healthcare benefits package with: • maximum limits • maximum deductibles	Expand essential benefits to include more conditions and services. Abolish limits on essential benefits Abolish deductibles and co-payments on essential benefits.
B6	Optional personal health savings accounts linked to health insurance policies are allowed.	Insurance companies will no longer be able to offer personal medical savings accounts with their products.

iv. Explain the federal government's intention with each reform item contained in Package B. [8]

Reform package C (Planned for 2028)		
Item	**Present state of affairs**	**Proposed reform**
C1	Tax rebate for individuals who can prove credible health insurance coverage. • $2000 if the taxpayer is younger than 65 • $4000 if the taxpayer is 65 or older	Taxpayers younger than 65 will receive a tax credit based on a formula. For taxpayers aged 65 years or older all household healthcare expenses will be tax deductible.
C2	Mandatory group health insurance for companies with more than 500 employees.	Change the minimum number to 20 employees.
C3	Insurers can charge older customers up to five times as much as younger customers.	Change the maximum factor to three times.
C4	Broker commission is unregulated and is paid by health insurance companies.	Broker fees will be strictly regulated and will be paid by the consumer.

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A lobby group has proposed that it will be better for consumers if the order in which packages B and C are introduced is reversed. In other words, they are proposing that Package C should be introduced in 2023 and Package B in 2028.

v. Discuss whether you agree with the statement that introducing Package C before Package B will be better for consumers. You should consider the advantages and disadvantages of introducing Package C earlier and those of delaying Package B to a later date. [18]

[Total 45]

[GRAND TOTAL 100]

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END OF EXAMINATION

