

EXAMINATION

7 November 2016 (am)

Subject F101 — *Health & Care* Fellowship Principles

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

- 1. Use the instructions and password provided at the examination center to log in.*
- 2. Submit your answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*
- 3. Save your work regularly throughout the examination on the supplied computer's hard drive.*
- 4. 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.*
- 5. You must not start typing your answers until instructed to do so by the supervisor.*
- 6. Mark allocations are shown in brackets on exam papers.*
- 7. Attempt all seven (7) questions, beginning your answer to each question on a new page.*
- 8. Candidates 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 AND hand in 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

- (i) Define managed care. [2]

As part of their managed care approach, a health insurer writing medical expense cover requires a 'second opinion' to be obtained before they will pay for surgery. The insurer will pay the additional consultation fee, but this doctor will not perform the surgery, they are asked only for their opinion on the original recommendation.

- (ii) Discuss the impact that the second-opinion approach could have on controlling medical costs for the insurer. [6]

- (iii) List the other stakeholders and outline their concerns that may arise from this approach. [3]

[11 marks]

QUESTION 2

Materna is a developing country with significant maternal mortality intra-country variations, i.e. women in certain areas experience much higher maternal mortality than women in other areas. This is attributed to large equality gaps in income and education as well as high healthcare disparities among different areas. The government of Materna is considering increasing the national health budget allocated to improving access to maternal healthcare, particularly in impoverished communities where this access is known to be very limited.

- (i) Define "Cost-benefit analysis" (CBA) and explain how it can be used to make resource allocation decisions related to maternal healthcare. [6]

Administration of Oxytocin soon after delivery is known to reduce postnatal hemorrhage, one of the main causes of maternal mortality. The maternal health task team proposed issuing oxytocin in pill format via local clinics for pregnant women to take home. The hope is that the availability of the drug at the time of delivery of the baby, even in rural areas, will reduce maternal mortality.

- (ii) Set out the advantages and disadvantages of this proposal and comment on whether a CBA might be helpful in assessing it. [6]

[12 marks]

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QUESTION 3

All over the world, the number of people requiring access to audiology services is on the increase and the population of Audacious is no exception to this global trend. Hearing loss is often a very gradual process and those affected by it are often the last to recognize the problem.

A private audiology clinic in Audacious has started an online testing facility called “Right-Hear”, where any person with a computer and internet access can have their hearing tested.

- (i) List the characteristics of a condition that make it appropriate for inclusion in a Critical Illness (CI) product, and outline how the “Right-Hear” campaign might impact each of these CI characteristics, assuming hearing loss as a CI condition. [5]

The “Right-Hear” campaign has proven to be a huge success and its diagnosis of hearing impairment has been endorsed by the Audacious Department of Health.

- (ii) Identify the main risk(s) to insurance companies selling CI that covers loss of hearing, and suggest ways they can manage these risk(s). [6]

[11 marks]

QUESTION 4

A large health insurer has been writing medical expense cover for some time and is considering entering the market for long term care products.

- (i) Compare the product specific risks associated with immediate needs long term care products and prefunded long term care products. [5]
- (ii) Describe the factors that would need to be taken into account when determining the assumptions for an immediate needs long term care product. [8]

[13 marks]

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QUESTION 5

A health insurer is investigating the acquisition of a portfolio of individual critical illness products from a smaller competitor who is wanting to focus on their medical expenses business.

- (i) Discuss how you would assess the profitability of the portfolio being purchased and the associated risk. [7]
- (ii) Describe the key reasons why the future experience of the portfolio being purchased may differ from the experience of the acquiring company's existing business. [7]

[14 marks]

QUESTION 6

A health insurer has a book of individual hospital cash cover written through affinity groups. The product is annually renewable sold at a flat rate to all eligible members of these groups. There is no individual underwriting but there is an initial six month waiting period.

- (i) Discuss the key risks associated with this product. [5]
- (ii) Comment on how these risks can be mitigated. [4]
- (iii) The product currently has a deferred period of two days per admission before the daily benefit commences. The sales team have suggested that an alternative product that has a deferred period of one day and doubles the daily benefit for emergency admissions is offered. Describe how you would price this product. [5]

[14 marks]

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QUESTION 7

A small country, HealthVille, currently has no private medical insurance (PMI). There are a number of well-established hospital networks and primary care provider networks in HealthVille.

The government in HealthVille provides certain healthcare benefits to its population on a means-tested basis. The government subsidises hospitals based on the number of beds they have. Individuals that do not qualify for state healthcare benefits pay on a fee-for-service basis.

Recently, economic instability in HealthVille has seen a rapid increase in the cost of medical treatments in and out of hospital, driven by a depreciating currency and an exodus of qualified medical practitioners from HealthVille.

- (i) Outline ways in which the government can reign in the rapid escalation in medical treatment costs. [5]

LifeETC, a large life insurance company has identified the need for PMI in HealthVille, and is planning to launch a comprehensive product and a low cost product to cover medical treatment costs. LifeETC will be contracting with hospital networks and primary care networks which will provide medical treatments to its PMI policyholders. You are an actuary in the employ of LifeETC, and have been tasked with developing the PMI products.

- (ii) Explain what data you would require to compare costs between various network providers in HealthVille [4]
- (iii) Discuss how you would go about comparing the costs between different networks of providers in HealthVille [5]

The CEO of the LifeETC has approached you and said that he is concerned about the current plans which are to contract with the cheapest provider networks in that no consideration is being given to the quality of healthcare the policyholders will be receiving.

- (iv) Explain why the CEO may be concerned about the quality of the treatment provided by the networks [3]
- (v) Outline ways in which the quality of treatments provided by different networks/providers can be measured objectively. [5]

The government of HealthVille, after reviewing and approving the application for the PMI insurance business, is very impressed with the way in which LifeETC compared costs between different providers and wants to revise the way in which they allocate their hospital subsidies.

- (vi) List all the different purposes for which the government can use risk adjustment. [3]
[25 marks]

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END OF EXAMINATION