

Actuarial Society of South Africa

EXAMINATION

27 October 2014 (a.m.)

Subject A302 - Communications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

- 1. Candidates will be issued with instructions to log-in using a password (which you will be provided with at the exam center).*
- 2. Enter all the candidate and examination details at the beginning of each question. Ensure that your Candidate number appears at the top of each page handed in. [Select “Insert”, then “Header”, input your candidate number on blank header template and select “Close Header”].*
- 3. Save your work continuously throughout the exam, on the provided computer’s hard drive.*
- 4. You have 15 minutes at the start of the examination 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 questions, beginning your answer to each question on a new page.*
- 8. Candidates should show calculations where this is appropriate.*
- 9. Candidates are required to do a word count – don’t forget to show this at the end of each question.*

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.

| |
|--|
| <p><i>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.</i></p> |
|--|

Question 1

Your aunt, Christina, is 55 years old and is the Deputy Headmistress at a private girl's school. She recently won U100 000, the equivalent of one year's salary, in Utopia's government lottery. Individuals who win significant amounts of prize money in the lottery are required to attend a day long basic investment seminar.

Christina attended the seminar and decided that she wants to use her winnings to buy a new Yogata car when she retires at age 65. She called a Yogata salesman last week and confirmed that her winnings would be just sufficient to allow her to purchase a mid-range Yogata today. She believes that she needs to invest in an asset that earns inflation-related returns to be able to afford a similar car when she retires. She also mentioned that she will be upset if she cannot afford her ideal car on retirement. Any money left over after buying the car will be used to subsidise a holiday at retirement.

You are an honour's year actuarial student at Learning University. Christina has written to you to help her decide where to invest her winnings. The investment seminar identified index-linked government savings bonds, shares and property investments as earning long term returns that are related to inflation. The functioning of Utopia's sole equity unit trust investment was explained, but property unit trusts were not mentioned.

Christina wants to choose an investment that requires very little effort and expertise on her part. She has therefore decided that direct equity investment is not a suitable option, but that equity unit trusts sound good.

Your course notes state that index-linked government savings bonds with a 10, 15 or 20 year terms are available. They provide a low initial bi-annual income that increases with price inflation. Initial capital, increased with price inflation, is repaid at the end of the term. Initial capital investments in any multiple of U10 000 are permitted i.e. a U30 000 investment is acceptable, but not a U35 000 one. Income can be paid out in cash or automatically re-invested.

Draft a letter of between 500 and 600 words to Christina explaining which investment best suits her needs. You are unsure of how well the various investments were covered in the lottery seminar and have decided to briefly summarise the expected cash flows from the relevant options. Restrict your analysis to index-linked government savings bonds, equity unit trusts and property investments.

Notes:

- Christina has some mathematical knowledge.
- Car prices are expected to increase with price inflation.
- Anyone is allowed to give investment advice in Utopia.
- There is one property unit trust and one equity unit trust in Utopia.
- The objective of the equity unit trust is to achieve a return of 2% above price inflation over a rolling 10 year period.

PLEASE TURN OVER

- Net underlying investment income is automatically reinvested in all unit trusts.
- Restrict your comments on property investment to direct investment and property unit trusts.
- Assume that property unit trust prices are solely dependent on rental income and underlying property price movements.
- Assume that Christina will invest her entire winnings in the investment vehicle of her choice.
- Create address details where required.
- Indicate word count on your draft solution. Count your words from the first sentence to the closing sentence without counting address(es) or the complimentary close/signature.

[50]

PLEASE REMEMBER TO SAVE

Question 2

You are the Consulting Actuary to the Matchbox Pension Fund. It is a defined benefit fund. Funds are built up in advance of expected future benefit payments. Regular contributions are received from Fund members and their employer.

Members' initial annual pension payments, as set out in the Fund rules, are 2% of their final year's salary for each complete year that they have worked for the Matchbox Factory. Pensions are paid from normal retirement age until members die. The rules of the Fund state that retired members' pension payouts must be increased by 8% p.a. on 1 January each year. Members who retire between increase dates receive a pro rata increase on their first increase date.

The Matchbox Factory's management team has suggested to the Fund's Board of Trustees that they consider insuring the Fund's pension in payment liabilities by buying annuities for its members from an insurance company. The Board of Trustees has consequently requested you to give an overview of how pension benefits are currently funded, highlighting potential risks facing the Fund under the current system of funding pensions in payment, as well as the potential risks that would face the Fund should they decide to insure these liabilities.

Draft a presentation to the Board of Trustees, consisting of 7 to 9 slides, in response to their request.

You should assume the following in your reply:

- The rules of the Fund are unchanged since the Fund's inception.
- The management of the Matchbox Factory and the Workers' Association (representing the majority of employees) each nominate half of the Board of Trustees.
- In normal circumstances, the employer is required to make good any funding deficit.
- The Fund is currently in a sound financial position. There is no possibility that the existing level of pension benefits payable out of the Fund (prior to insuring these payments) will be reduced in future.
- Legislation states that, should an insurance company default on pension payments made on behalf of a retirement fund (of whatever type), the liability reverts to the retirement fund in question.
- Insurance companies are well regulated.
- The main funding assumptions for pensions in payment in the Fund's valuation basis relate to mortality, investment return and administration expenses.
- You may ignore risks related to poor data.
- Differences in the relative cost of the current and suggested option are due to the use of different bases. Do not consider the relative cost of these options beyond the possible purchase date of the annuities.
- The purchase price of annuities is affordable to the Fund.

[50]

PLEASE SAVE

END OF EXAMINATION