

Actuarial Society of South Africa

EXAMINATION

11 May 2018

Subject A302 — Communications

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. *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 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 all questions, beginning your answer to each question on a new page.*
8. *You should show calculations where this is appropriate.*
9. *Add your word count to the bottom of Question 2.*

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><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>
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QUESTION 1

You recently joined the product development team of a life insurance company and one of your first tasks is to provide the call centre staff with refresher training on an old product range. The product range is closed to new business, but still results in lots of queries from existing clients.

Product Specification: Guaranteed Endowment Assurance

- Benefit payable on death in the year following the t^{th} policy anniversary (SA_t) is given by the formula

$$SA_t = SA_0 \times \left(t \times T_t + \prod_{j=1}^t (1 + R_j) \right)$$

Where

- SA_0 is the original sum assured at commencement of the policy
- R_j is the reversionary bonus rate applied at each policy anniversary occurring on or after the date on which the bonus rate is amended
- T_t is the terminal bonus rate applicable at time t
- Benefit payable on survival at expiry of the original term is equal to SA_n where n is the original term of the policy.
- Benefit payable on termination of the policy before the expiry of the original term of the policy is the death benefit excluding the terminal bonus and multiplied by a factor. The factor is zero for the first 5 years of the policy. From the 5th policy anniversary onwards the factor is 0.9 raised to the power of the outstanding term of the policy in whole years.
- Premiums are level throughout the term of the policy and paid monthly.
- The declared reversionary bonus rate was 4% until 1/12/2015 when it was decreased to 2.5% and is expected to remain at this rate for the foreseeable future.
- The terminal bonus rate has been 2% since 1/12/2015 and is expected to drop to 1% at 1/12/2018.
- Bonus rates are applied at the policy anniversary following the declaration date.
- There are no other benefits than those described above.
- Loans against the policy and making the policy paid up are not permitted.

While the administration system will provide the call centre agent with the figures that they need to give to the client, accurate examples are necessary to illustrate the concepts and reinforce the training.

REMEMBER TO SAVE

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The common questions that get asked by clients are

- How much longer before I get my pay-out?
- How much will I get when the policy matures?
- How much will I get if I cancel the policy before it matures?
- Can I have a loan against the policy?
- Why is the surrender value of the policy lower than the amount I would get on death?
- Why is it called guaranteed if you don't guarantee the investment return?
- Can I change my investment portfolio to an equity fund?

The fully scripted answers to these questions are provided in the training handbook available to all staff. Your team leader sent these 3 draft slides to you:

Guaranteed Endowment Assurance

Product Refresher Workshop

Agenda

- Reasons clients bought this product
- Important product features
- Policy value illustrations & explanations
- Frequently asked questions
- Further assistance

Reasons clients bought this product

- Pays a benefit on maturity, death or early cancellation whichever happens first.
- Guarantees minimum values on each benefit payment event.

Draft a PowerPoint presentation of no more than 10 slides that you will use in your training session.

For all illustrations use policy number 5173428 that has the following features:

- The policy had its 25th policy anniversary on 1/1/2018
- The original term of the policy was 30 years
- The initial sum assured was R100 000
- Do not show values before 1/1/2018 in any illustrations

[50]

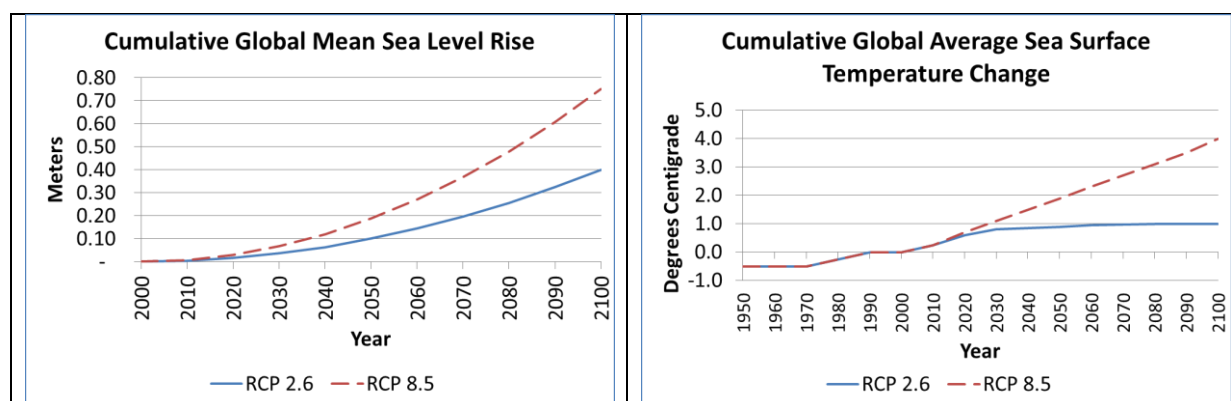
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QUESTION 2

You are an actuary working for a global consulting company that has many financial services companies as clients. You recently attended a presentation on global warming. After the presentation you felt that the company that you work for and the clients that you consult to, could be doing more towards managing and reducing the risk of global warming.

In the presentation these two graphs stood out for you.



Source - Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

RCP2.6 is the representative concentration pathway that assumes that global CO₂ emissions peak between 2010 and 2020 and decline thereafter, while RCP8.5 assumes that CO₂ emissions continue to rise throughout the 21st century.

You have decided to write a letter to the chairman of the board making some suggestions of what the company should be doing as its contribution to saving the planet. You can assume that global warming and its link to CO₂ emissions is accepted. In your letter you need to cover these important aspects: explain the problem and the macro consequences of global warming, consider solutions and make specific suggestions for your firm to adopt.

The notes that you took during the presentation are included below:

- Higher temperatures = more extreme weather e.g. cyclones, flooding
- Only a 2°C increase is necessary to cause weather patterns to change
- Higher sea level = property at risk, lives at risk, bigger storm surges
- Some countries have more than 50% of their population living at less than 5m above sea level
- Warmer seas kill off essential basic marine food sources

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- Change in weather = change in rainfall and fresh water distribution, new water shortages in different parts of the world
- Change in temperatures = change in disease patterns, people and animals exposed to disease that they are not immune to
- 51% likelihood of a reduction in global GDP per capita by at least 20% by 2100 on RCP8.5
- Photosynthesis by plants reduces CO₂ in the atmosphere but not nearly enough
- Reducing CO₂ emissions is the only sensible solution
- Reducing CO₂ emissions comes at a cost, that cost is less than the cost of inaction
- What can companies do
 - Have a company policy
 - Set a good example
 - Be prepared for natural disasters
 - Support climate monitoring and research
 - Make green investments
 - Capitalize on energy-efficiency and renewable energy
 - Reward customers who adopt a responsible approach to CO₂ emissions
- What people can do
 - Eat less meat
 - Hook your home up to clean energy
 - Insulate your house
 - Travel smart – use less fossil fuel energy
 - Use only the energy you need

Format your letter with the appropriate details and names.

Your letter must be between 575 and 625 words counting from after the salutation and excluding the sign off.

[50]

[Total 100]

REMEMBER TO SAVE

END OF EXAMINATION