Actuarial Society of South Africa

EXAMINATION

24 October 2019

Subject N211 — Communications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. Follow log in and saving instructions issued to you at the exam venue.

2. Save your work throughout the exam.

3. 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"].

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 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 1. Include words in tables and graphs.

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

Check that you have saved your work as per instructions given to you.
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

Your uncle and aunt, Lucky and Lindiwe, recently worked at a game stall that was raising money for the annual Community Chest Carnival. The carnival was held on a long weekend and was visited by thousands of people over three days. The stall made a profit of R3 522 over this time.

The game works as follows: three red balls and one blue ball are placed in a bag. Customers pay R3 to play the game. They are blindfolded and asked to select two balls from the bag. If they select two red balls, they are given R5. If they select fewer than two red balls, they forfeit their money.

Lucky plans on using the idea behind this game to make money at his weekly card nights. He has noticed that his friends get upset if none of the cards that they are dealt are aces, kings, queens, jacks or 10s as it is not easy to win without these high value cards.

Lucky has talked to his wife, Lindiwe, about offering insurance against getting a hand with no high value cards. He is thinking of offering one player in each hand of cards the opportunity to insure against this by paying him R1 in advance. If that player is dealt only low value cards, Lucky will pay them R1 000.

Lindiwe has written you an e-mail that contains the following extracts:

How can Lucky suggest this way of making money? He claims that we can expect to win almost R830 for every 1 828 hands of cards played. I'm sure that we will be bankrupt in just one evening!

I thought long and hard about why the stall made money at the fair. There are only four different ways in which you can take three red and one blue ball out of the bag:

    red   red   red   blue

    red   red   blue   red

    red   blue   red   red

    blue   red   red   red

I get that the order in which the customer picks the balls is decided by chance. For every four games played, the stall only expects to pay out R5 in two of them. You expect to get in R12 and pay out R10. All well and good, but how can Lucky expect me to believe that we will make money if he offers to pay out R1 000 for a R1 bet?

I sat down and tried to work out what the chances are of someone winning the R1 000 but gave up. There are so many ways in which you can be dealt a hand of 13 cards!

PLEASE TURN OVER

Write an e-mail to your aunt, of between 550 and 650 words, explaining that you can use the product of fractions to determine the chance of winning, firstly at the carnival game and, secondly, at Lucky's weekly card evenings. Address the potential risks and rewards inherent in the insurance scheme given the random nature of card games. Base your explanation on the chances of winning in the carnival game.

Notes:
- You may assume that one of Lucky's friends takes up his offer in each hand of cards that is dealt.
- A deck of cards has four suits, each with 13 cards (5 of which are high value cards).
- In Lucky's card games, each of the four players are dealt 13 cards.
- All cards other than aces, kings, queens, jacks and 10's are low value cards.
- The stall was given a cash float of R100 at the start of each day of the carnival in case early morning customers were luckier than expected.
- As Lindiwe assists her son with his grade 7 mathematics, she is used to working with fractions.

[Total 50]

REMEMBER TO SAVE

QUESTION 2

The company where you work (ABC), has an organisational retirement fund called the XYZ Retirement Fund. The trustees of this fund have been concerned to learn that they could be held personally liable for losses incurred by the fund if they do not fulfil their obligations to the fund to the required standards. As they felt that you were best positioned, in your role as an actuary at ABC, to alleviate their concerns, they have approached you for advice.

You have been in touch with some colleagues in the legal department to determine the validity of their concerns and have done some research of your own as well.

Your research has yielded the following:

The rules of the Fund stipulate that the Fund is controlled and managed by the board of trustees that binds the Fund regarding all matters of the Fund and which has all the powers required to attain the objectives of the Fund.
The board of trustees must consist of eight members, of which fifty percent must at all times be independent of the funder(s) and members.
The objectives, responsibilities, powers and duties of the board are clearly set out in the rules of the Fund, and these correspond directly to the requirements of the Retirement Fund Act.

> South Africa has over 3 500 registered retirement funds with 11 million members and investments exceeding R 2 trillion.

> XYZ Retirement Fund has 500 members, of whom 150 are retired and total investments of about R 500 million.

The Retirement Fund Act requires several duties and responsibilities from trustees tasked with managing the members' investments.

In pursuing this objective, the trustees must:

- take all reasonable steps to ensure that the interests of members in terms of the rules of the fund and the provisions of the Retirement Funds Act are always protected
- act with due care, diligence and good faith
- avoid conflicts of interest
- act with impartiality in respect of all members and beneficiaries.

The key issue taken from the above, according to Bob Naidoo from Legal, is that trustees must make sure they have access to the information and expertise to fulfil their obligations appropriately. Furthermore, if external knowledge by way of a third party is used (e.g. investment management), the trustees might still be held liable for losses incurred by the fund, or by the members, as result of actions by the third party, if it is shown that they did not act in the best interests of the members.

There is Professional Indemnity and Fidelity Guarantee cover available from several major insurers packaged specifically for retirement funds. This cover will provide protection for the trustees, the members, the funding company (or employer of the members) and the fund itself against claims against them for intentionally negligent or criminal acts which have placed the fund's assets at risk. Some cover also protects against computer crime by a third party.

These plans provide cover for:
- errors and omissions by trustees or third-party service providers
- emotional distress of the trustees
- legal fees and expenses for investigations into the insured's pension arrangements
- professional indemnity cover for trustees and principal officers
- fidelity cover to protect trust assets against theft or fraud by a trustee.

Some cover also offers risk management services to mitigate and manage risks such as:
- arbitration services (to resolve disputes) between members, trustees and third parties
- account verification for large payments (to third party service providers)
- trustee and principal officer education
- assistance in providing responses to complaints raised with the Retirement Fund Adjudicator
- high level analysis of agreements with third party administrators to highlight potential risk areas.

Based on your research, you have concluded that the trustees' concerns are not unfounded. You have been asked to present your findings at the next trustee meeting in a week's time.

Prepare a presentation of 8-10 PowerPoint slides outlining:

- the duties and responsibilities of the trustees
- the liability that trustees of a retirement fund may be exposed to
- potential risk management strategies for both the fund and the trustees based on your findings.

[Total 50]

[Grand Total 100]

REMEMBER TO SAVE

END OF EXAMINATION