Actuarial Society of South Africa

EXAMINATION

28 October 2015

Subject F204 – Pension and Other Benefits

Fellowship Applications

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. *Candidates are required to submit their 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 continuously throughout the exam, on your computer's hard drive that you have been provided.*

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 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.*

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

The Government of the Republic of Nidea, a country without any pension fund regulation, wishes to implement a pension regulation structure to regulate an already reasonably sized pensions industry with a range of insured, industry and employer sponsored retirement arrangements.

As a consulting actuary you have been asked to participate in a project team tasked with designing an appropriate regulatory framework.

i) Briefly describe the key elements likely to be needed in the overall pension's regulatory framework. [3]

The legal team responsible for preparing the new pensions legislation have asked for your assistance in developing the appropriate legislation given your knowledge and understanding of South African pension legislation.

ii) Set out the items that would need to be dealt with under the pension legislation. [16]

The Government have concerns around the provisions of appropriate retirement benefits and their Minister of Social Security has recommended that retirement funding should mainly be done through a pre-funded single pension scheme to which all employees will belong. The Government is unsure as to whether this should be a Defined Benefit (DB) or Defined Contribution (DC) scheme.

iii) Discuss the risks and uncertainties, advantages and disadvantages to the sponsor and to the participating members of each of these types of arrangements in the context of this single pension scheme. [16]

It has been proposed that the scheme should target a maximum pension of 60% of final salary where employees would accrue a pension of 1.5% of salary for each year of employment. The pension would be paid on reaching age 65 years, there would be no provision for early or late retirement. The Actuarial Reserve would be payable on death and disability before retirement.

The Government would like to understand the expected costs associated with the above proposed scheme. It does not know the current level of participation within retirement arrangements and does not have any indication of the likely level of accrued benefits, if any.

iv) Stating the realistic assumptions you use, estimate the expected contribution rate required for typical new entrant to the proposed scheme. You should use 5 year age intervals starting at a 20 year old employee. [11]

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v) Comment briefly on the contribution rates derived in part iv). [3]

vi) Repeat the calculations in part iv) above allowing for a minimum pension of N2000 per person per month. Illustrate the impact for an employee earning the national average monthly salary of N8000. [5]

In order to get the scheme up and running the Government believes they may require a transfer of existing benefits into the scheme.

vii) Briefly set out some of the key issues that would need to be considered with regards to transfers from other DB or DC retirement arrangements. [4]

Concerns have been raised that the single fund may not provide the sufficient retirement funding to meet everyone's desires. Consideration will therefore be given to allowing additional top up savings.

viii) Discuss the broader issues that would need to be considered in the context of allowing additional top up savings both inside and outside the scheme. [4]

Having seen the costs projected for the relevant benefits the Government believes that additional savings would be needed. The Government would aim to cover the costs associated with the proposed benefit structure, including the minimum pension in part vi), and would like employers and employees to fund any additional balance.

ix) Using all information already provided estimate the potential additional contributions or, alternatively, the lump sum required on entry to ensure that all employees achieve a 75% replacement ratio. [6]

[Total 68]

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QUESTION 2

You are the consulting actuary to a large company that is struggling to attract and retain skilled staff. The company currently has no retirement provision and has decided that a Defined Contribution (DC) pension fund should be established for all staff. The Finance Director (FD) has agreed that a budget of 10% of the total basic salary roll can be made available for this purpose and has stressed that the total cost of the pension fund must not exceed this figure.

The HR Director has suggested the following DC pension fund design:

- Normal Retirement Age (NRA): 65 years.
- Member contributions into fund: members can elect either 0% or 7.5% of basic salary.
- Company contributions on an age related basis where:
  - *Contributions start at 3% for those below age 25*
  - *And increase by 1% at every 5 year age band*
  - *Reaching 10% at age 60 years*
- The expenses of managing the fund will be deducted from the Company contribution.
- On death or resignation prior to NRA, the DC fund value is payable.
- At retirement the member's DC fund value is converted into a pension within the fund at conversion rates to be set by the Trustees.
- At retirement the members choose the rate of pension increases in payment to be secured and the extent to which a contingent dependant's pension will be provided.
- The Trustees will decide on the range of investment options to be offered to members.

i) The HR director has asked you to comment on the proposed benefit design and the risks associated with it from the point of view of the company and the employees. [13]

ii) Suggest alterations to the proposed design that would help to overcome some of the company risks that you have identified in part i). [4]

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The HR Director is worried that some members are too risk-averse to be members of a pure DC pension fund. As a result, she is proposing to introduce two optional guarantees to her original DC fund design:

- Option 1: A guarantee that investment returns credited to DC funds cannot fall below 4% per annum over the period from joining the fund until retirement or earlier death.
- Option 2: A guarantee that the pension at retirement will not be less than 1/50th of the total basic pay received over the period of fund membership.

The HR Director has suggested that any member who wishes to take advantage of either (or both) of these guarantees must pay an additional charge to meet the expected cost of the guarantee. She has asked for your advice.

iii) Comment on whether the introduction of these guarantee options is likely to improve or worsen the chance of the fund meeting the design objectives set out in part i). [5]

iv) Comment on the nature of each guarantee and what you would consider in estimating the cost of each guarantee. [7]

v) Comment on how the investment strategy of the fund might need to change as a result of introducing the guarantees. [3]

[Total 32]

GRAND TOTAL [100]

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END OF PAPER