

# Actuarial Society of South Africa

## EXAMINATION

1 November 2013 (am)

### Subject F204 - Pensions and Other Benefits Specialist 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.*
- 3. Save your work continuously throughout the exam, on your computers' 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.*

<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

A large international retail group has purchased a South African chain store group, SA Massretail. SA Massretail has never had a single group wide retirement arrangement and under the instruction of the international owners has been asked to investigate and propose an appropriate single arrangement for all SA employees.

You have been asked to assist with the investigation and recommendations:

- i) Briefly describe the main retirement arrangements available to the company [2]

SA Massretail and their international owners have agreed that a defined contribution arrangement would be suitable. They need your assistance in designing an appropriate scheme taking into account the following criteria:

- The retirement benefits should be sufficient to meet a generally acceptable after retirement income over a reasonable working career;
- They would prefer some security for members post retirement;
- They insist that sufficient provision should be made for appropriate benefits for dependants on ill-health or death before retirement;
- Contributions should be sufficient to meet the targets above within appropriate tax limits;
- The range of employees varies and some consideration for this needs to be taken into account

The owners have requested that you draft a report setting out the overall structure of the Fund. This report should include details of the derivation of the targeted retirement benefits, the underlying range of contributions taking into account a reasonable investment strategy and the likely investment return targets that will meet the desired benefits. The report should also include a discussion on recommended risk benefits and expenses and the allocations from contributions towards these arrangements.

- ii) Set out the points that you would make in your response to the owners' request. Your response should include the use where applicable of examples, calculations and/or projections for each of the elements within the structure. [26]

**[Total 28]**

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## QUESTION 2

The country of Southern Zamgolia was created 3 years ago following a civil war with Northern Zamgolia.

The government of Southern Zamgolia recently introduced a labour law on 1 March 2011 which provides all employees with the following minimum severance benefit:

- One week of pay for each completed year of service with an employer;
- The benefit is payable to an employee on the attainment of age 65 years.
- The benefit is also payable on death, disability, retrenchment or unfair dismissal prior to age 65 years.
- The benefit is not payable under any other circumstances.
- An employee is defined as anyone who does not hold a management position within a company.

An employer can choose to pay a greater benefit than that set out above.

MicroShell a global conglomerate, recently purchased Zamgolia Resources. Zamgolia Resources has two divisions. The first employs 400 people and has a normal retirement age of 65 years. The second division employs 3 000 people and has a normal retirement age of 60 years.

You are a consulting actuary who has been asked by MicroShell to determine the liability of the severance benefit for Zamgolia Resources for the purposes of International Accounting Standard 19 (IAS19).

- i) Set out the additional information and the data you require in order to determine the severance benefit liability. [8]
- ii) Outline the valuation assumptions that are required for the valuation and how you would determine these assumptions. [18]

The Financial Director of Zamgolia Resources has been approached by an investment manager who has recommended that the company considers setting aside assets equal to the liability disclosed by the IAS19 valuation. The investment manager further recommended that the assets be invested in a pooled investment portfolio.

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- iii) Discuss the merits of the investment manager's recommendation. [10]

Zamgolia Resources already provides retirement and death benefits through a defined contribution pension fund. Zamgolia Resources have indicated that they want to minimise the overall increase in the cost of employment resulting from the benefits under the Labour Law.

- iv) Discuss how Zamgolia Resources could achieve this. [5]

**[Total 41]**

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### QUESTION 3

The following is an extract from the membership booklet of the defined contribution pension fund of Company X.

Normal Retirement Age	60 years
Contributory Salary	Annual salary.
Contributions	Members pay 6% of Contributory Salary. Employer pays 4% of Contributory Salary plus the cost of risk benefit and administration expenses.
Investments	Contributions are invested in the Life-stage Portfolio. Funds are invested in a mixture of local equities and inflation linked Government bonds. Up until Age 50 years the investment is 100% in local equities and over the 10 years to Normal Retirement Age, the investments are gradually moved to inflation linked Government bonds until 100% is invested in the latter at age 60 years.
Retirement benefit	Up to one-third of the member's accumulated funds can be paid out in cash. The balance will be used to secure an annuity from an insurer on the following basis: <ul style="list-style-type: none"><li>- Annual increases guaranteed at inflation; and</li><li>- If married, a 50% spouse's pension on the death of the member.</li></ul>
Death benefit	A lump sum of 3 times Contributory Salary plus the accumulated fund plus a spouse's pension of 30% of Contributory Salary.
Disability benefit	An income continuation policy is maintained by the Employer which pays 75% of Contributory Salary, and the Employer contributions on behalf of the member, up until normal retirement age or earlier death. A disabled member remains a member of the Fund and continues contributing.
Withdrawal	The accumulated fund is payable. The member may elect to transfer the accumulated fund to another approved pension arrangement.

The pension fund has 23 000 members and R35 billion in assets.

A benefit statement provided to Joe Soap as at 31 October 2013 showed a projected pension equal to 75% of his current Contributory Salary. A real investment return of 3.0% per annum in excess of salary increases was assumed in the benefit statement.

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Joe Soap is 45 years old as at 31 October 2013. He has worked for Company X for the last 20 years. He is currently being paid a salary of R300 000 per annum. His accumulated fund in Company X's pension fund is R1 800 000.

Joe has decided to leave Company X and work for himself with effect from 1 November 2013.

Joe has looked at the possibility of contributing towards a retirement annuity offered by a local investment manager. He has asked for your advice pertaining to his retirement benefits (assume you are permitted to give any such advice).

Set out the points you would make in response to Joe about his retirement arrangements and the choices available to him. Your points should cover the following:

- i) How benefits are provided in a retirement annuity and a defined contribution pension fund and how the retirement annuity can be used for Joe. [6]
- ii) Investment and expense considerations [6]
- iii) Risk benefit provision [5]

He has indicated that he wants to maintain his projected retirement benefit at 75% of his current Contributory Salary. You have agreed that the same post-retirement annuity basis as used by Company X's pension fund will apply.

- iv) Taking into account the issues raised in i) to iii) above, determine a suitable rate of contribution towards the retirement annuity in order for Joe to meet his retirement objective. [8]

Joe has indicated that he intends to use his resignation benefit from the Company X pension fund to finance his new business.

- v) Recalculate the required rate of contribution towards the retirement annuity. Comment on your results and set out what advice you would provide to Joe. [6]

[Total 31]

**GRAND TOTAL [100]**

**END OF PAPER**