EXAMINATION

8 April 2008 (pm)

Subject CA3 — Communications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1.   Enter all the candidate and examination details as requested on the front of your answer booklet.

2.   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.

3.   You must not start writing your answers in the booklet until instructed to do so by the supervisor.

4.   Attempt Question 1 AND Question 2.

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

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.

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1   You are the adviser to the ABC Pension Scheme. The administrator of the Scheme has received a letter from a member. He has referred the member's query to you and an extract from the letter is shown below:

> "I recently requested up-to-date information on my pension options. One of the statements said that if I wanted to retire early, my pension at age 65 would be reduced. I am considering retiring at age 62 and when I contacted one of the administrators, I was told that the current "actuarially cost neutral early retirement factor" applied to the pension at the Normal Retirement Age would be 21.11%. However, whilst looking through some old correspondence, I came across another letter dated 21 May 2005 stating that the early retirement factor at age 62 would be 8.68%.
>
> I am struggling to understand why my pension is reduced and why the reduction has more than doubled over the last three years. I feel that I am being unfairly penalised for choosing to retire early. I have always been told that I will receive a certain pension on retirement i.e. £20,000 p.a. Now that I have decided to retire slightly earlier, why can't you simply pay me the full level of pension?
>
> Please could you answer my queries so that I can make a decision? Your urgent attention will be greatly appreciated."

Draft a letter for the administrator to send to the member in approximately 500 words. As the member's query relates to early retirement at age 62, you should only consider the position at this age in your response.

You have obtained the following additional information:

- Member's date of birth: 1 August 1948.

- Date member joined the Scheme: 1 January 1998.

- Date member left the Scheme: 31 July 2005.

- Accrued deferred pension when member left the Scheme: £13,537 p.a. (Where "accrued deferred pension" is the member's pension at date of leaving the Scheme.)

- Estimated pension at Normal Retirement Age (age 65): £20,000 p.a.

- The revaluation rate of the pension between date of leaving and age 65 is 5% p.a. compound as per the Scheme rules. (Where "revaluation" is the rate of increases that apply between the relevant dates.)

- Scheme rules state that pensions in payment increase at 3% p.a. and members can exchange some of their pension for a cash lump sum.

- On death, a spouse's reversionary pension of 50% of the member's pension before any exchange for cash is payable.

- The early retirement pension is reduced by a factor dependent on age at retirement. The factor is derived such that the actuarial value of the early retirement and normal pensions are the same taking account of life expectancy and the discount rate.

- The method of calculating the early retirement pension has recently changed. The method referred to in the letter dated 21 May 2005 was an old approach – the reduction factor was applied to the accrued pension revalued to the early retirement date. Under the new approach, the factor is applied to the accrued pension revalued to Normal Retirement Age.

- The factors used in practice under both the old and new approaches are shown below (only shown to two decimal places for ease of administration).

Number of years member retiring early	Reduction factors applied to accrued pension (old approach)	Reduction factors applied to pension at Normal Retirement Age (new approach)
1	2.98%	7.60%
2	5.87%	14.62%
3	8.68%	21.11%
4	11.40%	27.11%
5	14.04%	32.65%
6	16.60%	37.77%
7	19.09%	42.50%
8	21.50%	46.87%
9	23.84%	50.90%
10	26.11%	54.64%

[50]

2   You have been assisting in developing a new lump sum investment product designed for medium to long-term savings.

The company providing the product expects to incur administrative expenses of approximately 5% of the lump sum investment. In order to recover these expenses, two charging options have been proposed:

- a one-off deduction of 5% from the amount invested at the start
- a deduction of 1.25% of the fund at the start of each of the first 4 years

You have been asked to assist the project team in deciding which of these two options is most appropriate, giving consideration to both the customer and company perspective. An actuarial student has produced some information for you, as shown below.

Draft a presentation of up to 8 slides to the project team to explain the considerations from the customer and company perspective, looking at the proposed options and alternatives.

Bob,

I have looked at the 2 charging structures, and whilst clearly $1.25 \times 4 = 5$, it just isn't as simple as that.

Taking the example of a fund of £10,000 then the 5% would take out £500 in charges, and allowing for fund growth at 7% per annum, I get the following figures:

Year	Start	Deduction	Deduction	After deduction	With growth	PV6
1	10000	5%	500	9500	10165	500
2	10165.000		0	10165.000	10876.550	0
3	10876.550		0	10876.550	11637.909	0
4	11637.909		0	11637.909	12452.562	0
5	12452.562		0	12452.562	13324.241	0
6	13324.241		0	13324.241	14256.938	0
7	14256.938		0	14256.938	15254.924	0

Note: PV6 = net present value of the deductions at 6% p.a. interest

Or with the second charging option:

Year	Start	Deduction	Deduction	After deduction	With growth	PV6
1	10000	1.25%	125	9875	10566.25	125.000
2	10566.250	1.25%	132.078	10434.172	11164.564	124.602
3	11164.564	1.25%	139.557	11025.007	11796.757	124.205
4	11796.757	1.25%	147.459	11649.298	12464.749	123.810
5	12464.749		0	12464.749	13337.281	0.000
6	13337.281		0	13337.281	14270.891	0.000
7	14270.891		0	14270.891	15269.853	0.000

Note: PV6 = net present value of the deductions at 6% p.a. interest

Clearly in the first option, the total deduction is £500. In the second the total is £544.09. However for this option, when I take the present value of these deductions at 6%, the present value is £497.617.

Under Option 1, the projected fund value at the end of 7 years is £15,255 compared with the corresponding value under Option 2 of £15,270. While this shows that the individual customer is slightly better off under option 2, it misses out part of the picture for the company.

Our standard actuarial assumption for surrenders is a 10% decrement each year, based on our past decrement experience analysis. Allowing for this, the deductions that accrue to the company in option 2 change radically:

Year	Old	% inforce	New	PV6
1	125.000	100%	125.000	125.000
2	132.078	90.00%	118.870	112.142
3	139.557	81.00%	113.041	100.606
4	147.459	72.90%	107.498	90.257

Note: PV6 = net present value of the deductions at 6% p.a. interest

And the present value is £428.01 – which leaves our company with a significant loss compared to the £500 expenses incurred.

I've therefore looked at what charge would be required in place of the 1.25% to still get a present value of close to £500. For example a charge of 1.46% would give a total of £498.46. The numbers become:

Year	Start	Deduction	Deduction	After deduction	With growth	PV6
1	10000	1.46%	146	9854	10543.78	146.000
2	10543.780	1.46%	153.939	10389.841	11117.13	145.226
3	11117.130	1.46%	162.310	10954.820	11721.657	144.455
4	11721.657	1.46%	171.136	11550.521	12359.057	143.689
5	12359.057		0	12359.057	13224.191	0.000
6	13224.191		0	13224.191	14149.885	0.000
7	14149.885		0	14149.885	15140.377	0.000

Note: PV6 = net present value of the deductions at 6% p.a. interest

Year	Old	% inforce	New	PV6
1	146.000	100%	146.000	146.000
2	153.939	90.00%	138.545	130.703
3	162.310	81.00%	131.471	117.009
4	171.136	72.90%	124.758	104.749

Note: PV6 = net present value of the deductions at 6% p.a. interest

Another option might be to put in an exit charge. So if, for example, the customer leaves in the first year, having only paid 1.25%, then a further 3.75% would be deducted.

I hope this helps with your presentation.

Regards,

John

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END OF PAPER