2012 PART III EXAMINATIONS

Subject Title:	**C2B Life Insurance (longer answer component)**
Date:	**Monday, 22 October 2012**
Time:	**1:00 pm – 4:00 pm**

Time allowed: Three (3) hours including of reading time

Instructions: Type your answers to the longer answer component in a Word document and ensure that there is no data linked to spreadsheets. Only your Word document will be marked. Your Excel file should also be saved as a backup.

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Number of Questions: **Two** (2)

Question	Marks
1	30
2	30
Total	**60**

Candidates are required to answer <u>**ALL**</u> questions.
This paper has **eight** (8) pages (excluding this page).

COURSE 2B LIFE INSURANCE OCTOBER 2012 EXAMINATIONS

Answer two questions.

QUESTION 1 **(30 Marks)**

TS Life is a medium sized life insurer with a full range of life insurance products. You have just been appointed as the actuary responsible for all actuarial issues relating to capital management. You report to the Chief Actuary. TS Life conducts no business in the Shareholders Fund.

The target surplus policy has, up to now, been "ad hoc" with the amount decided annually by the Board on the basis of qualitative considerations.

The Board, encouraged by the Chief Actuary, has now decided to set an objective target policy on the basis of considered actuarial advice. The Chief Actuary has asked you to examine some specific issues in relation to the company's financial position:

A. Analyse the financial position of the company as at 30 June 2012 and comment on your key findings. (10 Marks)

B. What quantitative measure of target surplus would you recommend and what reasons would support your recommendation? Your recommendation is for a set of approaches and formulae which, when applied to the measures of business volumes and/or solvency and CAPAD calculations, will lead to an actual target surplus each year. A $ figure is not required for this part. (15 Marks)

C. Provide an estimate as at 30 June 2012, of the change in capital your recommendation would lead to, compared to the current capital. The estimate can be based on only the data provided. (5 Marks)

Your answers to all three parts are to be prepared as an actuarial briefing note for the Chief Actuary which can be used as the basis of the Chief Actuary's written advice to the Board.

Attachments (also shown below):

- Attachment 1: Balance sheet for 2012 & 2011. [2B LA Q1 Balance Sheet.xlsx].
- Attachment 2: Summary details of business volume by product with current target surplus and capital adequacy amounts for 2012 & 2011. [2B LA Q1 Business Details.xlsx]

Attachment 1: Balance sheet for 2012 & 2011

Balance Sheet as at 30 June 2012

	30-Jun-12	30-Jun-11
Assets	**$million**	
Cash	199.1	207.1
Investment Property	319.2	316.9
Listed Equities	2,598.3	2708.1
Government Bonds	1,453.6	1550.4
Other Investments	345.1	351.1
Owner Occupied Property	105.8	99.8
Outstanding Premiums	19.7	21.4
Other Assets	24.4	27.5
TOTAL ASSETS	5065.2	5282.3
Liabilities		
Share Capital	102.0	102.0
Retained Profits	16.4	19.5
Policy Liabilities	4873.8	5077.3
Outstanding Claims	18.7	21.3
Tax Provision	39.1	44.6
Other Liabilities	15.2	17.6
TOTAL LIABILITIES	5065.2	5282.3
NET ASSETS	118.4	121.5
DIVIDENDS PAID	6.1	0

Attachment 2: Summary details of business volume by product with current target surplus and capital adequacy amounts for 2012 & 2011.

Business Details as at 30 June 2012 (year Ending for New Business)

All amounts are $million
All data is net of reinsurance

Product	FuM		Annual Premium	
	New Deposits	In Force	New Business	In Force
YRT			44.5	189.2
Disability Income			25.1	99.6
Ordinary Investment Linked	122.1	545.2		
Superannuation Investment Linked	1022.7	3,227.9		
Allocated Annuities	222.2	945.6		
TOTALS	1367.0	4718.7	69.6	288.8

	Policy Liabilities	Solvency Liabilities	CAPAD Liabilities	Current Target Surplus Addition to CAPAD
YRT	101.0	107.3	109.5	3.0
Disability Income	54.1	61.5	69.2	2.0
Ordinary Investment Linked	545.2	546.6	548.0	1.0
Superannuation Investment Linked	3227.9	3236.0	3244.1	4.0
Allocated Annuities	945.6	948.0	950.3	1.0
Resilience Reserve		14.3	16.9	
Expense Reserve		21.2	0.0	
Inadmissible Assets		0.0	0.0	
New Business Reserve		0.0	15.4	
TOTALS	4873.8	4934.9	4953.4	11.0

In Force & Liabilities as at 30 June 2011

Product	FuM In Force	Annual Premium In Force
YRT		224.3
Disability Income		104.2
Ordinary Investment Linked	576.5	
Superannuation Investment Linked	3,365.2	
Allocated Annuities	995.7	
TOTALS	4937.4	328.5

	Policy Liabilities	Solvency Liabilities	CAPAD Liabilities	Current Target Surplus Addition to CAPAD
YRT	121.2	129.3	132.0	3.5
Disability Income	56.6	65.1	73.5	2.0
Ordinary Investment Linked	549.9	555.3	557.9	1.0
Superannuation Investment Linked	3356.4	3364.8	3382.8	4.5
Allocated Annuities	993.2	995.7	1001.5	1.0
Resilience Reserve		16.1	19.5	
Expense Reserve		26.7	0.0	
Inadmissible Assets		0.0	0.0	
New Business Reserve		0.0	17.5	
TOTALS	5077.3	5153.0	5184.7	12.0

QUESTION 2 **(30 Marks)**

CG Life is a large life insurance company with a material volume of capital guaranteed superannuation investment account business. The product was closed to new policies in 2006 but new deposits to existing policies continue to be accepted.

You are the actuary responsible for this particular product and its management. You are determining the crediting rate for this business for the year ending 30 June 2012.

A. Carry out an analysis of profit for this business and document the analysis. Set out the important conclusions to be drawn from this analysis. (15 Marks)

B. Set out with reasons the crediting rate you will recommend. (10 Marks)

C. How will the cost of applying this crediting rate be incorporated into the company's accounts? (5 Marks)

Attachments (also shown below)

- Attachment 1: Capital Guaranteed Superannuation Investment Product Description
- Attachment 2: Full accounting details for the capital guaranteed investment account business [2B LA Q2 CGAccountingData.xlsx].
- Attachment 3: Details of recent history of the crediting rates for this business including investment reserves [2B LA Q2 CGCreditingRateHistory.xlsx].

Attachment 1: Capital Guaranteed Superannuation Investment Product Description

Fees:

- 2% of all deposits
- Policy Fee of $35 p.a. increasing each year at the rate of increase in the Consumer Price Index
- 1.2% p.a. of Account Balances from month to month prior to adding investment earnings credited to the account (These are only added at year end or at withdrawal)

The crediting rate is guaranteed not to be lower than zero but, otherwise, it is determined by CG Life in its absolute discretion. However, no part of the investment income generated by the assets supporting the business can be retained by the company. Any which is not distributed to policyholders must be transferred to an investment reserve. Amounts may be transferred from the investment reserve and distributed to policyholders.

The product pricing was reviewed in 2006 as a result of the decision to close it to new policies. The key assumptions behind the pricing above were:

- Withdrawal rates 15% p.a. of account balances.
- The fees were sufficient to cover expenses and leave a pre-tax profit margin of 0.35% of account balances.

Attachment 2: Full accounting details for the capital guaranteed investment account business

CG Accounting Data for the year ending 30 June 2012

	$million
Account Balances 1 July 2011	1,050.0
Account Balances 30 June 2012 (before crediting)	970.0
Investment Reserve 1 July 2011	119.0

All the data below is for the year ending 30 June 2012

New Deposits	98.0
Withdrawals	178.0
Investment Earnings (after tax & inv. expenses)	16.8
Policy Fees	0.3
Expenses directly related to the CG business	10.1
Other expenses allocated to the CG business	3.2

Attachment 3: Details of recent history of the crediting rates for this business including investment reserves.

CG Credting Rate History

Financial Year	Account Balances Year End (After Crediting) $million	Crediting Rate %	Investment Performance (after tax & inv. Expenses)	Investment Reserve Year End $million
2005/06	1,435	9.0%	10.4%	137
2006/07	1,029	12.0%	13.5%	156
2007/08	956	5.0%	4.4%	150
2008/09	1,123	4.5%	-0.7%	96
2009/10	1,214	5.0%	6.5%	113
2010/11	1,050	6.0%	6.5%	119

Asset Allocation (%) Year End

	Equities	Cash	Govt Bonds
2005/06	25	20	55
2006/07	33	15	52
2007/08	28	25	47
2008/09	22	30	48
2009/10	19	38	43
2010/11	24	45	31
2011/12	22	50	28

END OF PAPER