COURSE COVERAGE

Question	Unit	Syllabus Performance Outcome and Learning Objective	Page Reference in Course Notes	Total Marks
a)	2	2.3.1 Identify the different values that may be placed on assets	36-37	5
b)	3	3.7 Provide advice to a life company on the distribution of profits to participating policy owners	51	7
c)	1 4	1.1 Value life insurance policy liabilities for the purpose of profit reporting under Australian standards. 4.8 Plan the calculation of a life insurer or retail funds manager appraisal value	22-27 55-56	30
d)	1	1.1.4 Determine the requirements of valuations as they apply to participating business	29	8
e)	2 5	2.3.1 Identify the different values that may be placed on assets 5.10 Analyse and interpret the financial statements of a life insurer or funds management company	36-37 64	10
f)	2	2.4 Identify and apply the requirements of the life insurance "Capital Adequacy Standards"	42	10
g)	5	5.10 Analyse and interpret the financial statements of a life insurer or funds management company	64	5
h)	1 2	1.1 Value life insurance policy liabilities for the purpose of profit reporting under Australian standards. 1.1.4 Determine the requirements of valuations as they apply to participating business 2.4 Identify and apply the requirements of the life insurance "Capital Adequacy Standards"	22-27 29 42	10
i)	2 5	2.3.1 Identify the different values that may be placed on assets 2.4 Identify and apply the requirements of the life insurance "Capital Adequacy Standards" 5.10 Analyse and interpret the financial statements of a life insurer or funds management company	36-37 42 64	15
Total				**100**

a)

Refer to the solution spreadsheet.

Marking Guide	Marks
Calculation of "weighted standard deviation: column F	1
Check weights add to 100%: cell E9	0.5
Calculation of average annual return – marks for formula: cell C9	1
Calculation of average annual return – result correct	0.5
Calculation of average monthly return: cell C10	0.5
Calculation of standard deviation of annual return – marks for formula: cell D9	1
Calculation of standard deviation of annual return – result correct	0.5
	5 marks

b)

Marking Guide	Marks
Factors discussed should relate to the product as described – 0.5 marks for a relevant factor, 0.5 marks for explaining the factor / linking the factor to the product	
Policyholder reasonable expectations – are likely to be based on both past returns and observed market levels of return for the target asset mix (more sophisticated policyholders)	0.5 + 0.5
Equity between cohorts of policyholders – if crediting rates are too low, people who die or lapse will not earn a fair share of the investment returns (tontine effect)	0.5 + 0.5
Smoothing of crediting rates – the company should aim to provide a smooth return over time	0.5 + 0.5
Lapse risk – if crediting rates are too low, policyholders may lapse and take their business elsewhere	0.5 + 0.5
Crediting rates should not be too high...	0.5
...allow for some long term benefit from investment fluctuation reserve (e.g. smoother crediting rates, bonus payout on maturity...	0.5
... and also high crediting rates could cause higher lapses in years where returns are poor	0.5
Returns offered by competitors...	0.5
...the company needs to ensure that they are in line with competitors or they will risk losing business...	0.5
... and/or have lower future sales	0.5
The impact this will have on the capital requirements – unlikely to be material	0.5 + 0.5
1 mark for each additional valid point with explanation of relevance to this product	Up to 0.5 + 0.5 marks each
	Up to 7 marks

c)

Refer to the solution spreadsheet.

Marking Guide	Marks
Spreadsheet: documentation and formatting	1
Note: the following appear in the same order as the columns on the solution sheet (except the interim crediting rate as noted)	
Interim crediting rate – calculated in sheet "Assumptions"	0.5 marks for each if included, additional 0.5 marks if correct formulae (6 marks total)
Mortality rates – included and correctly converted to monthly rates	
Lapse rates – included and correctly converted to monthly rates	
Projected inforce policies	
Number of deaths	
Number of lapses	
Account Balance (excl. IFR) (BOM) – set equal to EOM calculation	0.5
Premium – calculated as an annual payment, 0 in other months	0.5 + 0.5
Initial fees – calculated as an annual payment, 0 in other months	0.5 + 0.5
Death/Lapse Payments from Account Balance (Mid-Month)	1
Death/Lapse Payments from Interim Crediting (Mid-Month)	1
Monthly Fees (Before Crediting Rate) (EOM)	1
Credited Return (EOM) – calculated as an annual payment, 0 in other months	0.5 + 0.5
Maturity Payments (excl. IFR) (EOM) – only at the end of the projection	0.5 + 0.5
Maturity Payments inc. IFR) (EOM) – only at the end of the projection	0.5 + 0.5
Account Balance (excl. IFR) (EOM)	1
Initial Expenses (BOM) – only at the time 1	0.5 + 0.5
Renewal Expenses (BOM) – calculated as an annual payment, 0 in other months	0.5 + 0.5
Commission (BOM) – calculated as an annual payment, 0 in other months	0.5 + 0.5
PV Premiums (BOM) – projected correctly allowing for right timing with discounting	0.5 + 0.5
DAC (EOM) – as a percentage of PV premiums and decreasing only annually	0.5 + 0.5
Fund Balance (BOM)	1
Investment Return (EOM)	1
Investment Fluctuation Reserve (BOM)	1
Policy Liabilities (EOM)	1
Profit before Tax (EOM)	1
Tax (EOM)	0.5
Profit after Tax (EOM)	0.5
Profit before Tax (Fees Less Expenses) (EOM)	1.5
Check (should equal zero) – or bonus for acknowledging that a non-zero result is incorrect	1
	30 marks

d)

Marking Guide	Marks
A key advantage of the investment fluctuation reserve is that it helps the company smooth the allocation of investment returns to policyholders by using the crediting rate mechanism…	1
…and ensures that the company is able to keep track of the impact of any smoothing of crediting rates…	1
… and hence excess returns that are due to policyholders	0.5
…the IFR also means that crediting rates can be maintained in years when investment returns are low e.g. as a result of market falls	0.5
The IFR also means that changes to crediting rates do not affect profits…	1
…unless the business is in loss recognition	0.5
Policyholders may not understand the purpose of the IFR…	0.5
…and/or the mechanics of the smoothed crediting rate…	0.5
…and hence may find the product less attractive than competing products…	0.5
…e.g. an investment linked product…	0.5
…especially in times of high investment returns…	0.5
…or for policyholders who exit and receive the reduced interim crediting rate	1
1 mark for each additional valid point	Up to 1 mark each
	Up to 8 marks

e)

Marking Guide	Marks
Equities make up 15% of the fund (per (a))…	0.5
…assuming the same asset mix applies, …	0.5
…hence the equity loss results in a 3% fall in the overall portfolio value…	0.5
…assuming that there are no other assets affected…	0.5
…and the portfolio return (assuming the other asset classes return the gross expected return) would reduce for the period…	0.5
…to about 1% assuming the total return for the year was the 20% loss	0.5
This return is much lower than the previous year's crediting rate…	0.5
…which means that the fund will need to try to smooth this return out…	0.5
…ability to do so depends on the IFR…	0.5
…and hence this loss may have a long-term impact on current and future crediting rates…	0.5
…there may be a risk of additional lapses (prefer interim crediting rates) if policyholders understand the impact and do not understand returns will be smoothed	0.5
i) The Profit and Loss statement of Green Life for the period: the impact on the P&L depends on the IFR: if it can absorb the loss, there may be very little impact as reserves offset the movement in asset values (and vice versa)…	2
…otherwise the guarantee will mean that a loss may be recognised	1
ii) Policy liabilities: current policy liabilities are the sum of the account balance, IFR and DAC, and as account balances are guaranteed and hence the only impact will be through the IFR	1
iii) Account balances for each policyholder: will be unaffected by the loss – in future the account balances will increase with the crediting rates (discussed below)	1
iv) Future crediting Rates: the impact will depend on the assets available in the IFR which reflects past investment returns vs. crediting rates…	0.5
…if the company has built up a reserve over the past, it may be able to smooth this out…	0.5
…and future crediting rates will then depend on future investment returns	0.5
However, if the IFR is small (e.g. due to past losses, smoothing, higher crediting rates or the time since the fund started), this may mean that future crediting rates could be affected as well (again, this depends on future investment returns)	1
1 mark for each additional valid point	Up to 1 mark each
	Up to 10 marks

f)

Marking Guide	Marks
The PCA is subject to a minimum of $10m (unless APRA has approved an exclusion)	0.5
The key risk is the guarantee provided by the crediting rates for the investment account policy…	1
…the capital for this guarantee will be included in the asset risk stresses…	0.5
…and Green Life will need to consider whether the asymmetric nature of this risk means that stochastic modelling may be required to quantify the impact…	1
…however, this would depend on how Green Life manages the risk and in particular whether hedging or other mitigants are used to manage the guarantee…	0.5
…noting that the IFR and smoothing provide some protection…	1
…and Green Life will need to consider whether to allow for management actions and the impact this will have on the capital required in respect of the guarantee…	1
Green life will have to calculate the asset risk charge…	1
…by applying each of the stresses to the different asset classes…	0.5
…and also assess whether any concentration risk capital is required	1
The calculations allow for the impact of tax…	0.5
…and management actions…	0.5
…both of which are subject to limits which are tested using the combined scenario	0.5
Operational Risk Charge is calculated as a percentage of policy liabilities, with consideration for premium income and claim payments (death / lapses) in the formula	1
Insurance risk charge is likely to be zero…	0.5
…as the IFR is owned by the policyholders, furthermore…	0.5
…if a full projection were performed, it is expected any change in the RFBEL would be offset by a change in the IFR.	0.5
…aggregation benefit will also be zero as a result…	0.5
…unless there is other business within the same statutory fund	0.5
1 mark for each additional valid point	Up to 1 mark each
	Up to 10 marks

g)

Marking Guide	Marks
Format: email communications addressed to CFO	0.5
Language appropriate to audience	0.5
A fund management company may offer similar products to the investment account product offered by Green Life…	0.5
…however their products would generally be directly linked to the assets backing the fund (investment linked)…	0.5
…and hence do not offer the same type of guarantee as the Green Life investment account product…	0.5
…, furthermore such companies (not life insurers) do not have the same capital requirements as a result	0.5
Insurance companies are subject to the regulations in the Life Act and associated Prudential Standards…	1
…these define the requirements for holding capital and…	0.5
…policy liabilities…	0.5
…including an allowance for the risks associated with the guarantee	0.5
1 mark for each additional valid point	Up to 1 mark each
	Up to 5 marks

h)

Marking Guide	Marks
Format of answer – memo style	0.5
Language appropriate to audience	0.5
The Green Life insurance product already provides a guarantee in that the crediting rate cannot be negative…	1
…hence the crediting rates reflect a smooth investment return…	1
…and the assets are closely matched to the target investment mix…	0.5
…in years of poor investment returns, crediting rates can be reduced and/or the IFR can be used to provide some return to policyholders…	1
…a guarantee of 4% (and fluctuating with future inflation) reduces the ability of Green Life to smooth crediting rates	1
Introducing an additional guarantee in the form of a minimum return would increase the cost of providing the product as the guarantee would have to be funded…	1
…fees may need to be increased to allow for this cost…	1
…the guarantee will also need to be managed effectively and a hedging program may be needed to do so…	1
…this increases the operational risk and complexity in managing the assets and the guarantee.	0.5
The asymmetric nature of the guarantee may also mean that the liability valuation will need to allow for this risk…	1
…and the guarantee will also increase Green Life's capital requirements	1
1 mark for each additional valid point	Up to 1 mark each
	Up to 10 marks

i)

Marking Guide	Marks
Format of answer – memo style	0.5
Language appropriate to audience	0.5
In making this change, the CFO should consider Green Life's risk appetite…	1
…and product strategy, including whether it already offers other products that are backed by an asset portfolio with a lower risk profile	1
Changing the investment mix to reduce the risk within the fund would also reduce the returns that the fund can expect to earn in future…	1
…and also reduce the volatility of future returns…	1
…and hence would have a consequent impact both on future crediting rates and…	1
…on the ability of Green Life to smooth returns through building up an IFR over time	1
Green Life would expect that future smoothed returns would be lower than in the past…	0.5
…the impact will depend on the asset mix that Green Life moves to but could be substantial if equities or property investments were reduced in favour of cash and bonds	1
The change may also affect the competitiveness of the product relative to other companies offering similar products	0.5
The reduced returns could also mean that Green Life should reduce its fees to reflect the reduced risks and management requirements	1
Green Life also needs to consider whether the change would be fair to existing customers who may have invested in the fund with an expectation of future crediting rates reflecting the target asset mix…	1
…and will need to consider their current investment policy / mandate and customer documentation/expectations	1
The company will need to consider competitor's asset allocations to consider whether the change may influence future customers (e.g. other companies may offer higher expected crediting rates based on the original asset mix offered by Green Life)	1
The company should consider the risk appetite of its policyholders who may not wish to decrease the expected future crediting rates	1
Capital requirements would likely be reduced which would make the product more efficient from a capital perspective	1
If it is determined to proceed with the change in investment mix, this will need to be reviewed by the Appointed Actuary…	0.5
…and investment mix guidelines updated and provided to the investment custodian	0.5
1 mark for each additional valid point	Up to 1 mark each
	Up to 15 marks

END OF MARKING GUIDE