



Subject: AP2

Chapter: Unit 3

Category: Practice question

Q1. CP1 – April 2023 – Paper 1 – Q3

An insurance company sells products in a country where it is not compulsory for provisions to be held for its products.

The company has managed to pay all of its claims in full as they arise.

Suggest possible reasons why the company has managed to pay all of its claims in full to date. [6]

Q2. CP1 – April 2023 – Paper 1 – Q5

Company A has purchased Company B. The purchase included the defined benefit pension and death benefit scheme Company B provides for its employees.

Company B's scheme has remained open to new employees of Company B and to the future accrual of benefits.

One year after the purchase, Company A has become concerned about the costs from Company B's scheme. Company A is now considering possible ways of reducing the costs from Company B's scheme.

- (i) Suggest possible actions Company A could take to reduce the costs from Company B's scheme. [3]
- (ii) Outline the factors that would need to be considered by Company A if it:
 - a) decided to close Company B's scheme.
 - b) fully removed the scheme's liabilities from Company A's balance sheet. [7]

[Total 10]

Q3. CP1 – April 2023 – Paper 1 – Q7

- (i) Propose, with reasons, three risks that a defined benefit scheme may wish to hedge. [3]
- (ii) Explain why a defined benefit scheme may choose to use liability hedging. [2]
- (iii) Discuss the risks that may still exist for a defined benefit scheme even if it has hedged its liabilities. [5]

[Total 10]

Q4. CP1 – September 2022 – Paper 1 – Q2

The regulation of defined benefit schemes in a country requires that the assumptions used to determine the scheme's provisions for liabilities are the actuary's best estimate of future experience plus a margin for prudence.

Outline how sensitivity analysis can be used to determine the appropriate margin for prudence. [4]

Q5. CP1 – September 2022 – Paper 1 – Q3

A defined benefit scheme that is open to new entrants and future accrual has shown in its latest accounts that the scheme's funding deficit has deteriorated since the last scheme valuation.

Suggest possible reasons that could explain the change in funding deficit shown in the accounts. [5]

Q6. CP1 – September 2022 – Paper 1 – Q6

An insurance company uses financial derivatives to manage its exposure to options and guarantees across a range of financial products it has sold to investors. The range of financial products includes ones that pay benefits on death, on surrender and on maturity.

- (i) Outline the options and guarantees that the insurance company could offer at death, surrender and maturity. [3]
- (ii) Explain why the insurance company may use financial derivatives to manage risk in these products. [4]

[Total 7]

Q7. CP1 – September 2022 – Paper 1 – Q7

A regulator is reviewing a life insurance company's financial resilience using stress and scenario testing that considers a 5-year time horizon.

- (i) Explain why the regulator has chosen a 5-year time horizon. [3]
- (ii) Suggest, with reasons, the risks that could be included. [3]
- (iii) Suggest the financial measures that could be included in the review. [3]

The regulator has proposed an approach with four distinct time stages.

Stage 1	Stage 2	Stage 3	Stage 4
Balance sheet and capital requirements calculated immediately following stresses to: • interest rates. • credit spreads (no credit rating downgrades). • equity prices.	Balance sheet and capital requirements calculated immediately following stresses to: • interest rates. • credit spreads. • credit rating downgrades. • equity prices. • property prices.	Same stresses as Stage 2. Balance sheet and capital requirements calculated after changing the asset mix.	Same stresses as Stage 2 plus stress to longevity and lapse assumptions. Balance sheet and capital requirements calculated after changing the asset mix.

- (iv) Assess the regulator's proposal for testing the company's financial resilience including its reasoning for including each stage. [5]

[Total 14]

Q8. CP1 – April 2022 – Paper 1 – Q2

An insurance company sells single premium unit-linked investment bonds. The bonds can be surrendered at any time by the policyholder for the full value of the units at the date of surrender.

The company is to introduce a new version of the bond with an attaching guarantee. Under the terms of the guarantee, the surrender value on the 5th and 10th policy anniversaries will be subject to a minimum of the single premium paid.

- (i) Outline how the company's administration systems will be affected by the introduction of the new version of the bond with a guarantee.
- (ii) Outline how the company could manage the possible financial costs of the guarantee. [2]
[5]

[Total 7]

Q9. CP1 – April 2022 – Paper 1 – Q6

Discuss how a fair valuation could be determined for each of the following types of asset:

- (a) Unlisted corporate bonds
- (b) Commercial real estate loans
- (c) Property
- (d) Defaulted loans made to and secured on infrastructure assets. [12]

Q10. CP1 – September 2021 – Paper 1 – Q4

A life insurance company writes a wide range of business including savings, annuities and protection products.

The results of a recent study into the effects of a new treatment for a common form of cancer that mainly affects women show a 20% reduction in mortality rates compared to those who did not take the treatment.

Discuss the issues that the insurance company would need to consider when setting the provisions to make for its existing business, following this new information. [6]

Q11. CP1 – September 2021 – Paper 1 – Q6

A life insurance company has been closed to new business for many years. However, it has recently acquired another life insurance company that is writing new annuity and term assurance business and will continue to do so after the acquisition.

- (i) List six factors the directors of the company need to start considering for the financial success of the acquisition. [3]
- (ii) Describe how the closed book of business could impact the pricing of new annuity and term assurance business written after the acquisition. [5]

[Total 8]

Q12. CP1 – September 2021 – Paper 1 – Q9

A life insurance company in Country A sells annuities that are guaranteed to increase each year in line with an official price index that is published by the country's government.

- (i) Describe the factors a life insurance company needs to consider in selecting the investments to back the annuity liabilities. [4]

The government of Country A has decided to make changes to the official price index and create a new index.

- (ii) Suggest reasons for the government's decision. [3]
- (iii) Discuss how a life insurance company could be affected by the introduction of a new official price index. [5]

[Total 12]

Q13. CP1 – April 2021 – Paper 1 – Q2

A general insurance company's latest annual profits show that the company is performing in line with expectations overall. However, the performance of its home insurance product has been poor over the last 12 months, and it has suffered significant losses on this business.

- (i) Suggest possible reasons for the losses on the home insurance product. [4]

The regulator has reviewed the general insurance company's reserves and has determined that they are not sufficient. The regulator has therefore instructed the insurance company to increase its reserves within 1 month of the date of the instruction.

- (ii) Outline the options available to the insurance company to increase its reserves. [3]

[Total 7]

Q14. CP1 – April 2021 – Paper 1 – Q4

A life insurance company currently offers its with-profits policyholders the option of surrendering their policy early. On surrender, the policyholder is paid a surrender value, the amount of which is at the discretion of the company. Historically, surrender values paid in the early years of a policy have been significantly lower than the expected value of the policy at maturity, even after adjusting for future premiums and investment returns.

- (i) Outline the reasons why the life insurance company would take the approach outlined above to determine surrender values. [2]
- (ii) Suggest possible reasons why a policyholder would want to surrender the policy in the early years. [2]

Following complaints from surrendering policyholders, the insurance company plans to review its approach to determining surrender values.

- (iii) Suggest possible factors the insurance company should consider in its review. [4]

[Total 8]

Q15. CP1 – September 2020 – Paper 1 – Q6

- (i) Outline the reasons why an insurance company needs to calculate provisions. [3]

One of the largest insurance companies located in a particular country has received an offer to be purchased by an overseas private equity firm.

- (ii) Identify the different stakeholders involved in the proposed purchase, commenting for each how they might prefer the company's provisions to be calculated. [6]

[Total 9]

Q16. CP1 – April 2020 – Paper 1 – Q8

A wealthy individual has a large cash lump sum. He has asked an actuary to advise on how he might invest this sum to provide for himself and his family in retirement, and to be able to leave an amount as an inheritance.

- (i) Describe how the actuary would assess the individual's future liabilities. [4]
- (ii) Identify four key risks, from the viewpoint of the individual, which the actuary should consider when giving their advice. [2]
- (iii) Describe how each of the risks in (ii) might be mitigated. [6]

[Total 12]

Q17. CP1 – April 2019 – Paper 1 – Q6

- (i) State what is meant by a 'best estimate' assumption. [1]
- (ii) Give two examples where a 'best estimate' assumption would be suitable. [2]
- (iii) Describe three methods of allowing for risk in cash flows. [6]
- (iv) Discuss the purpose of equalisation reserves. [3]
- (v) Suggest why a regulatory regime may not recognise equalisation reserves. [2]

[Total 14]

Q18. CP1 – September 2018 – Paper 1 – Q4

A life insurance company has, to date, written only whole life assurances and immediate annuities. It is about to start writing income protection insurance, to cover only long term sickness or incapacity due to accident or illness.

It intends to price the new income protection business using a multiple state model, and is in the process of setting initial best estimates (i.e. ignoring margins for prudence) of the required assumptions.

- (i) List the main assumptions required for the multiple state model. [4]
- (ii) Discuss data that could be used to set an initial best estimate for each assumption in part (i). [12]

[Total 16]

Q19. CP1 – April 2018 – Paper 1 – Q4

- (i) Describe five methods which can be used to value the assets that an insurance company might hold. [10]

An insurance company's liabilities are sensitive to interest rates. The company wishes to reduce its exposure to interest rate risk via the use of swaps.

- (ii) Explain how:

- (a) These swaps could be valued in the company's accounts.
- (b) Their values will move if future interest rates are lower than expected. [6]

[Total 16]