FA Module 24 IFRS 17 two year coverage period illustrative exam questions

(The attached PDF file has better formatting.)

The illustrative questions use the scenario in the Module 24 posting for a two year coverage period, so that you can compare the solutions with the explanations in that posting. The exam problems use similar scenarios with different figures.

An insurer issues a two-year contract on January 1, 20X1.

! On January 1, 20X1, premium of 100 is received and acquisition cash flows of 20 are paid.
! A claim is expected to occur and be paid for 80 on December 31, 20X2.
! The discount rate is 6% *per annum*.
! The risk adjustment for non-financial risk is 2.00, and it does not accrete interest.
! The coverage units are the same in 20X1 and 20X2.

Question 24.1: Present value of future cash flows at initial recognition

What is the present value of future cash flows at initial recognition?

Answer 24.1: The present value of future cash flows at initial recognition is $-100 + 20 + 80 / 1.06^2 = -8.80$.

Question 24.2: Fulfilment cash flows at initial recognition

What are the fulfilment cash flows at initial recognition?

Answer 24.2: The fulfilment cash flows at initial recognition (including the risk adjustment for non-financial risk) are $-100 + 20 + 80 / 1.06^2 + 2.00 = -6.80$.

Question 24.3: Contractual service margin at initial recognition

What is the contractual service margin at initial recognition?

Answer 24.3: The contractual service margin at initial recognition is the negative of the fulfilment cash flows at initial recognition, but bounded from below at zero = max(0, -(-6.80)) = 6.80.

Question 24.4: Insurance contract liability at initial recognition

What is the insurance contract liability at initial recognition?

Answer 24.4: The insurance contract liability at initial recognition is the fulfilment cash flows at initial recognition plus the contractual service margin at initial recognition = -6.80 + 6.80 = 0.

Question 24.5: Present value of future cash flows after the net premium is received

What is the present value of future cash flows after the premium is received and the acquisition cash flows are paid?

Answer 24.5: The present value of future cash flows after the premium is received and the acquisition cash flows are paid is $80 / 1.06^2 = 71.20$.

Question 24.6: Fulfilment cash flows after the net premium is received

What are the fulfilment cash flows after the premium is received and the acquisition cash flows are paid?

Answer 24.6: The fulfilment cash flows after the premium is received and the acquisition cash flows are paid are 71.20 + 2.00 = 73.20.

Question 24.7: Amortized and allocated acquisition expenses

What are the amortized and allocated acquisition expenses in 20X1?

Answer 24.7: The coverage units are the same in the two years of the coverage period, so the amortized and allocated acquisition expenses in 20X1 = ½ × 20 × 1.06 = 10.60.

Question 24.8: Insurance finance expense on fulfilment cash flows in 20X1

What is the insurance finance expense on the fulfilment cash flows in 20X1?

Answer 24.8: The discount rate does not change in 20X1, so the insurance finance expense on the fulfilment cash flows is the discount rate times the present value of future cash flows at the beginning of 20X1: 6% × $80 / 1.06^2 = 4.27$

! The risk adjustment for non-financial risk in this illustration does not accrete interest.
! If the discount rate changes, the insurance finance expense is the present value of the future cash flows at the end of the year minus the present value of the same future cash flows at the beginning of the year, using the current discount rate for the beginning and the end of the year.

Question 24.9: Accretion of interest on the contractual service margin in 20X1

What is the accretion of interest on the contractual service margin in 20X1?

Answer 24.9: The accretion of interest on the contractual service margin is the discount rate determined at initial recognition times the contractual service margin at the beginning of the year: 6% × 6.80 = 0.41.

Question 24.10: Insurance finance expense in 20X1

What is the total insurance finance expense in 20X1?

Answer 24.10: The total insurance finance expense in 20X1 is 4.27 + 0.41 = 4.68.

Question 24.11: Contractual service margin before allocation to profit or loss at the end of 20X1

What is the contractual service margin before the allocation to profit or loss at the end of 20X1?

Answer 24.11: The contractual service margin before the allocation to profit or loss at the end of 20X1 is the contractual service margin at the beginning of the year plus the accretion of interest = 6.80 + 0.41 = 7.21.

Question 24.12: Allocation of contractual service margin to profit or loss in 20X1

What is the allocation of the contractual service margin to profit or loss in 20X1?

Answer 24.12: The coverage units are the same in the two years of the coverage period, so the allocation of the contractual service margin to profit or loss in 20X1 is ½ × 7.21 = 3.605.

Question 24.13: Contractual service margin after the allocation to profit or loss at the end of 20X1

What is the contractual service margin after the allocation to profit or loss at the end of 20X1?

Answer 24.13: The contractual service margin after the allocation to profit or loss is the contractual service margin before the allocation to profit or loss minus the allocation to profit or loss = 7.21 − 3.605 = 3.605.

Question 24.14: Insurance revenue in 20X1

What is the insurance revenue in 20X1?

Answer 24.14: The insurance revenue in 20X1 is the sum of four items:

!   incurred claims
!   the release of the risk adjustment for non-financial risk
!   the allocated and amortized acquisition expenses
!   the contractual service margin that is allocated to profit or loss

No claims occur in 20X1 and no risk adjustment for non-financial risk is released, so the insurance revenue is 10.60 + 3.605 = 14.205.

Question 24.15: Fulfilment cash flows at the end of 20X1

What are the fulfilment cash flows at the end of 20X1?

Answer 24.15: The fulfilment cash flows at the end of 20X1 are $80 / 1.06^1 + 2.00 = 77.47$.

Question 24.16: Insurance contract liability at the end of 20X1

What is the insurance contract liability at the end of 20X1?

Answer 24.16: The insurance contract liability is the fulfilment cash flows plus the contractual service margin = 77.47 + 3.605 = 81.075.

Question 24.17: Amortized and allocated acquisition expenses

What are the amortized and allocated acquisition expenses in 20X2?

Answer 24.17: The coverage units are the same in the two years of the coverage period, so the amortized and allocated acquisition expenses in 20X2 = $½ × 20 × 1.06^2 = 11.24$.

Question 24.18: Insurance finance expense on fulfilment cash flows in 20X2

What is the insurance finance expense on the fulfilment cash flows in 20X2?

Answer 24.18: The discount rate does not change in 20X2, so the insurance finance expense on the fulfilment cash flows is the discount rate times the present value of future cash flows at the beginning of 20X2: 6% × 80 / 1.06^1 = 4.53

! The risk adjustment for non-financial risk in this illustration does not accrete interest.
! If the discount rate changes, the insurance finance expense is the present value of the future cash flows at the end of the year minus the present value of the same future cash flows at the beginning of the year, using the current discount rate for the beginning and the end of the year.

Question 24.19: Accretion of interest on the contractual service margin in 20X2

What is the accretion of interest on the contractual service margin in 20X2?

Answer 24.19: The accretion of interest on the contractual service margin is the discount rate determined at initial recognition times the contractual service margin at the beginning of the year: 6% × 3.605 = 0.22.

Question 24.20: Contractual service margin before the allocation to profit or loss at the end of 20X2

What is the contractual service margin before the allocation to profit or loss at the end of 20X2?

Answer 24.20: The contractual service margin before the allocation to profit or loss at the end of 20X2 is the contractual service margin at the beginning of the year plus the accretion of interest = 3.605 + 0.22 = 3.825.

Question 24.21: Allocation of contractual service margin to profit or loss in 20X2

What is the allocation of the contractual service margin to profit or loss in 20X2?

Answer 24.21: The coverage period ends in 20X2, so the entire 3.825 is allocated to profit or loss in 20X2, and the contractual service margin after the allocation to profit or loss is zero.

Question 24.22: Insurance service expenses in 20X2

What are the insurance service expenses in 20X2?

Answer 24.22: The insurance service expenses is the incurred claims + the allocated and amortized acquisition expenses = 80 + 11.24 = 91.24.

Question 24.23: Insurance revenue in 20X2

What is the insurance revenue in 20X2?

Answer 24.23: The insurance revenue in 20X2 is the sum of four items:

! incurred claims
! the release of the risk adjustment for non-financial risk
! the allocated and amortized acquisition expenses
! the contractual service margin that is allocated to profit or loss

The insurance revenue in 20X2 is 80 + 2 + 11.24 + 3.825 = 97.065.

Question 24.24: Insurance service result in 20X2

What is the insurance service result in 20X2?

Answer 24.24: The insurance service result is the insurance revenue minus the insurance service expense = 97.065 – 91.24 = 5.825.