

FA Module 11 Finance lease practice exam questions

(The attached PDF file has better formatting.)

A firm enters into a four year finance lease on 1/1/20X1.

- Lease payments of 176 are due on January 1 of 20X1, 20X2, 20X3, and 20X4.
- The fair value of the equipment = the present value of the lease payments at the firm's 4% discount rate.
- The useful life of the equipment is four years and the salvage value is zero; use straight line depreciation.

The firm has earnings before tax and operating cash flow (*not including expenses related to the lease*) of 277 each year. The tax rate is 20%.

On January 1, 20X1, the firm's common stock is 534 and its long-term debt is 370.

Use the assumptions in the textbook about how the lease payments are divided between interest expense and reduction of the lease liability.

Question 11.1: Fair value of leased asset

What is the fair value of the equipment on January 1, 20X1?

Answer 11.1: $176 \times (1 + 1.04^{-1} + 1.04^{-2} + 1.04^{-3}) = 664.42$

(fair value = present value of future cash flows)

Question 11.2: Interest expense

What is the interest accrued (= interest expense) in 20X1?

Answer 11.2: $4\% \times (664.42 - 176) = 19.54$

(interest expense = (fair value – lease payment) × discount rate)

Question 11.3: Lease liability

What is the lease liability on December 31, 20X1?

Answer 11.3: $664.42 - 176 + 19.54 = 507.96$

(lease liability at the end of the year = lease liability at the beginning of the year – lease payment + interest expense)

Question 11.4: Interest expense

What is the interest accrued (= interest expense) in 20X2?

Answer 11.4: $4\% \times (507.96 - 176) = 13.28$

(interest expense = (fair value – lease payment) × discount rate)

Question 11.5: Lease liability

What is the lease liability on December 31, 20X2?

Answer 11.5: $507.96 - 176 + 13.28 = 345.24$

(lease liability at the end of the year = lease liability at the beginning of the year – lease payment + interest expense)

Question 11.6: Depreciation expense

What is depreciation expense in 20X1?

Answer 11.6: $664.42 / 4 = 166.105$

(depreciation expense = fair value / estimated useful life)

Question 11.7: Pre-tax income

What is pre-tax income in 20X1?

Answer 11.7: $277 - 19.54 - 166.105 = 91.355$

(pre-tax income = earnings before tax excluding the lease – interest expense – depreciation expense)

Question 11.8: Net income

What is net income in 20X1?

Answer 11.8: $91.355 \times (1 - 20\%) = 73.08$

(net income = pre-tax income × (1 – tax rate))

Question 11.9: Pre-tax income

What is pre-tax income in 20X2?

Answer 11.9: $277 - 13.28 - 166.105 = 97.615$

(pre-tax income = earnings before tax excluding the lease – interest expense – depreciation expense)

Question 11.10: Net income

What is net income in 20X2?

Answer 11.10: $97.615 \times (1 - 20\%) = 78.09$

(net income = pre-tax income × (1 – tax rate))

Question 11.11: Operating cash flow

What is the operating cash flow in 20X1 for GAAP?

Answer 11.11: $277 - 20\% \times 91.355 = 258.73$

(operating cash flow = operating cash flow excluding the lease – tax paid; for simplicity, this practice exam question has operating cash flow excluding the lease = pre-tax income excluding the lease)

Question 11.12: Financing cash flow

What is the financing cash flow in 20X1 for GAAP?

Answer 11.12: -176

(financing cash flow = negative of lease payment)

Question 11.13: Operating cash flow

What is the operating cash flow in 20X2 for GAAP?

Answer 11.13: $277 - 20\% \times 97.615 - 19.54 = 237.94$

(operating cash flow = non-lease operating cash flow – taxes paid – interest paid)

Question 11.14: Financing cash flow

What is the financing cash flow in 20X2 for GAAP?

Answer 11.14: $(507.96 - 345.24) / 1.04 = 156.46$

(Reduction in lease liability is at the end of the year; financing cash flow is part of the lease payment and occurs at the beginning of the year; divide by the discount rate)

Question 11.15: Return on equity

What is the return on equity in 20X1?

Answer 11.15: $73.08 / ((534 + 534 + 73.08) / 2) = 12.81\%$

(return on equity = net income / (average shareholders' equity))

Question 11.16: Return on equity

What is the return on equity in 20X2?

Answer 11.16: $78.09 / ((534 + 73.08 + 534 + 73.08 + 78.09) / 2) = 12.09\%$

(return on equity = net income / (average shareholders' equity))

Question 11.17: Debt-to-equity ratio

What is the debt-to-equity ratio on December 31, 20X1?

Answer 11.17: $(370 + 507.96 + 19.54) / (534 + 73.08) = 147.84\%$

(debt-to-equity ratio = long-term debt + lease liability + accrued interest) / shareholders' equity

Question 11.18: Debt-to-equity ratio

What is the debt-to-equity ratio on December 31, 20X1?

Answer 11.18: $(370 + 345.24 + 13.28) / (534 + 73.08 + 78.09) = 106.33\%$

(debt-to-equity ratio = long-term debt + lease liability + accrued interest) / shareholders' equity