Vol. 2, Chapter 5 – Lease Accounting

Problem 1: Solution

Option 1:

	Year 1	Year 2	Year 3
January	$ 5,000	$ 5,200	$ 5,400
February	$ 5,000	$ 5,200	$ 5,400
March	$ 5,000	$ 5,200	$ 5,400
April	$ 5,000	$ 5,200	$ 5,400
May	$ 5,000	$ 5,200	$ 5,400
June	$ 5,000	$ 5,200	$ 5,400
July	$ 5,000	$ 5,200	$ 5,400
August	$ 5,000	$ 5,200	$ 5,400
September	$ 5,000	$ 5,200	$ 5,400
October	$ 5,000	$ 5,200	$ 5,400
November	$ 5,000	$ 5,200	$ 5,400
December	$ 5,000	$ 5,200	$ 5,400
Total	$60,000	$62,400	$64,800

Total rent for 3 years = $187,200

Option 2:

	Year 1	Year 2	Year 3
January	$ 5,000	$ 5,200	$ 5,400
February	$ 5,000	$ 5,200	$ 5,400
March	$ 5,000	$ 5,200	$ 5,400
April	$ 5,000	$ 5,200	$ 5,400
May	$ 5,000	$ 5,200	$ 5,400
June	$ 5,000	$ 5,200	$ 5,400
July	$ 5,000	$ 5,200	$ 5,400
August	$ 5,000	$ 5,200	$ 5,400
September	$ 5,000	$ 5,200	$ 5,400
October	$ 5,000	$ 5,200	$ 5,400
November	$ 5,000	$ 5,200	$ 5,400
December	$ 5,000	$ 5,200	$ 5,400
Total	$60,000	$62,400	$64,800

Rent = $4,000 + 1% of monthly sales

Year	Monthly sales
1	$100,000
2	120,000
3	140,000

Total rent for 3 years = $187,200

Problem 2: Solution

1.	Rent expense	1,000	
	Prepaid rent	2,000	
	Cash		3,000

To record the payment of rent for April-June.

2.	Rent expense	1,000	
	Prepaid expense		1,000

To recognize rent for May.

Problem 3: Solution

1. Indifference point:
= $4,200 / .05 × 12
= $1,008,000

2. Should Paula agree to new terms?
In 20X6 her lease payment will be $3,958 per month.
In 20X7 her lease payment will be $4,433 per month.

Paula should stay with her current arrangement because she will save only $9 after the first two years, and will begin to lose money after that.

3. Cost of error over 5 years
In 20X6 her lease payment will be $3,958 per month.
In 20X7 her lease payment will be $4,433 per month.
In 20X8 her lease payment will be $4,965 per month.
In 20X9 her lease payment will be $5,561 per month.
In 20X0 her lease payment will be $6,229 per month.

Total lease payment made over 5 years with error
= $301,760.25

Total lease payment made over 5 years without error
= $252,000

Difference = $49,760.25
Taxes at 25% = $12,440.06
Error net of tax = $37,320.19

Problem 4: Solution

1.	Rent expense	3,000.00	
	Cash		3,000.00

To record the payment of rent for one month.

2.	Security deposit	5,000.00	
	Cash		5,000.00

To record payment of security deposit.

3.	Amortization	1,666.67	
	Leasehold Improvement		1,666.67

To amortize leasehold improvement and recognize expense for one month. Calculation of amortization:

Leasehold improvement × 1/60 = 100,000 × 1/60 = $1,666.67

Problem 5: Solution

Part 1			
7/1/X1	Prepaid Computer Lease	$2,000	
	Deferred Computer Expense	2,000	
	Cash		$4,000

To record initial lease payment.

Part 2			
7/31/X1	Computer Lease Expense	$2,000	
	Prepaid Computer Lease		$2,000

To record computer lease expense for July 20X1.

Part 3			
8/1/X1	Prepaid Computer Lease	$2,000	
	Cash		$2,000

To record computer lease payment for August 20X1.

Problem 6: Solution

1. Alternative #1

Year	Rent	Other	Total Costs
1	$24,000	$12,000	$36,000
2	24,000	12,600	36,600
3	24,000	13,200	37,200
4	24,000	13,800	37,800
5	24,000	14,400	38,400
6	24,000	15,000	39,000
7	24,000	15,600	39,600
8	24,000	16,200	40,200
9	24,000	16,800	40,800
10	24,000	17,400	41,400

Alternative #2

Year	Rent
1	$33,600
2	34,440
3	35,280
4	36,120
5	36,960
6	37,800
7	38,640
8	39,480
9	40,320
10	41,160

2. Alternative #2 is recommended. It is recommended because total costs are minimized with this alternative over the 10-year period.

Problem 7: Solution

Part 1

Present value of payments:

Initial payment	$10,000
Payments at the end of years 1-5 (10,000 × 3.6048)	36,048
Total	$46,048

Part 2

Amortization of Obligation:

Date of Payment	Annual Lease Payment	Interest Expense	Reduction in Liability	Balance of Liability Account
Total capitalized				$46,048
Signing of lease	$10,000	-	$10,000	36,048
1 year later	10,000	$4,326	5,674	30,374
2 years later	10,000	3,645	6,355	24,019
3 years later	10,000	2,882	7,118	16,901
4 years later	10,000	2,028	7,972	8,929
5 years later	10,000	1,071	8,929	-0-
Total	$60,000	$13,952	$46,048	

Problem 8: Solution

1. Present value of lease payment:

Annual lease payments	=	$5,000
Less: Amount of maintenance Contract	=	$1,000
Net lease payment	=	$4,000
Present value of an annuity for 4 payments at 10%	=	3.1699
Plus present value for initial payment at 10%	=	1 × initial payment of $4,000-1,000
	=	$3,000
Present value	=	$3,000 + $4,000 × 3.1699
	=	$15,679.60

2. Should the lease be capitalized?

The lease should be capitalized because it meets criterion #4. The present value of the payments is 90% or more of the fair market value.

Problem 9: Solution

1. Present value of lease payments

Payment Number	Payment	Present Value of Payment
1	$2,000	$2,000.00
2	2,000	1,941.75
3	2,000	1,885.19
4	2,000	1,830.28
5	2,000	1,776.97
6	2,000	1,725.22
7	2,000	1,674.97
8	2,000	1,626.18
9	2,000	1,578.82
10	2,000	1,532.83
11	2,000	1,488.19
12	2,000	1,444.84
		$20,505.25

2. If the lease is capitalized, no rent is recorded over the life of the lease.

3. Amount of interest recorded over the life of the lease if the lease is capitalized:
   Amount of payments = $2,000 × 12 = $24,000.00
   Present value of lease payments per part 1 above: $20,505.25
   Total interest expense: $3,494.75

Problem 10: Solution

1. The lease should be capitalized based on the bargain purchase provision.

2. Present value of the 10 payments of $2,300 is $18,648 based on a 10% discount rate (annuity due). (8.1078 × $2,300 = $18,648)

   Present value of the $500 future purchase is $310. (500 × .6209 = $310)

   So the present value of the lease is $18,648 + $310 = $18,958.

   Journal entry:

Leased equipment under capital lease	$18,958	
Prepaid insurance	$ 200	
Cash		$ 2,500
Obligations under lease		$16,658

Problem 11: Solution

Part 1

Value Recovery Provision: Is the present value of lease payments equal to or greater than $5,400 (90% of $6,000)?

initial payment	$1,525.00
payments 2-5: 1,525 × 3.0373	4,631.88
	$6,156.88

Since $6,156.88 is greater than $5,400, the lease of the posting machine should be capitalized at $6,156.88.

Part 2

The renovation of the hotel should be capitalized at $200,000 (100 rooms × $2,000 per room).

Part 3

Annual Amortization: $\frac{\$200,000}{23.5} = \$8,510.64$

Problem 12: Solution

Part 1

Value Recovery Provision:
P.V. of lease payments = fair market value × .9

Since 4,604.80* is greater than 4,050**, the owner is wrong in his belief.

*$1,000 + $1,000(3.6048) = $4,604.80
**($4,500)(.9) = $4,050

Part 2

The present value of the lease payment stream is $4,604.80.

Part 3

Leased equipment under capital lease	$4,604.80	
Cash		$1,000.00
Obligation under capital lease		3,604.80

Part 4

Interest for 20X1: 3,604.80 × .12 = $432.58

Part 5

Lease payments 2-5	$5,000.00
Obligation under capital lease	3,604.80
Total interest (20X1-20X5)	$1,395.20

Problem 13: Solution

1. Compare the present value of lease payments to 90% of the fair market value:

Payment Number	Payment Net of Maint.	PV of Payment
1	$5,300	$ 5,170.73
2	5,300	5,044.62
3	5,300	4,921.58
4	5,300	4,801.54
5	5,300	4,684.43
6	5,300	4,570.17
7	5,300	4,458.71
8	5,300	4,349.96
9	5,300	4,243.86
10	5,300	4,140.35
11	5,300	4,039.37
12	5,300	3,940.85
13	5,300	3,844.73
14	5,300	3,750.95
15	5,300	3,659.47
16	5,300	3,570.21
17	5,300	3,483.13
18	5,300	3,398.18
19	5,300	3,315.30
20	5,300	3,234.44
RVG	4,000	2,441.08
		$85,063.64

The lease should be capitalized since $85,063.64 exceeds $67,500.

2. Leased equipment $85,063.64
   Obligations under capital lease $85,063.64

   To record capitalization of leased computer system.

3. Journal entry to record the second payment:

Maintenance expense	$ 200.00	
Interest expense	2,047.26	
Obligations under capital lease	3,252.74	
Cash		$5,500.00

Determination of interest expense: Interest rate for the quarter × obligations under capital lease for quarter

Obligation at 1/1/X1		$85,063.64
Reduction at 3/31/X1:		
Payment net of maint.	$5,300.00	
Interest for quarter	2,126.59	3,173.41
Obligation at 3/31/X1		81,890.23

Interest for the quarter: $81,890.23 × .025 = $2,047.26

Problem 14: Solution

Part 1

Initial payment		$10,000.00
Future payments (4) (10,000 × 3.2397)		32,397.00
Residual value guarantee (5,000 × .6499)		3,249.50
Total		$45,646.50

Part 2

Leased equipment	$45,646.00	
Cash		$10,000.00
Obligations under capital lease		35,646.50

Part 3

Obligations under capital lease	$6,791.81	
Interest expense	3,208.19	
Cash		$10,000.00

Problem 15: Solution

Part 1

Initial payment	$35,000
Less: maintenance costs	(5,000)
	30,000
Future net lease payments ($30,000 × 3.1699)	95,097
Residual guarantee ($10,000 × .6209)	6,209
Total	$131,306

Part 2

$131,306 > 140,000 (.9)

Yes. The present value of lease payments exceeds 90% of the system's fair market value.

Problem 16: Solution

Part 1

Present Value of Lease Payments:

Initial payment (net)		$ 47,000
Future payments (net) (47,000 × 3.1699)		148,985
		$195,985
Leased equipment	$195,985	
Prepaid maintenance	10,000	
Prepaid insurance	3,000	
Cash		$60,000
Obligations under capital leases		$148,985

Part 2

Obligations under capital leases	$32,101.50	
Interest expense	14,898.50	
Prepaid maintenance	10,000.00	
Prepaid insurance	3,000.00	
Cash		$60,000

Part 3

Total payments net of maintenance and insurance (47,000 × 5)	$235,000
Capitalized leased equipment	195,985
Total interest	$ 39,015

Problem 17: Solution

Part 1

Initial lease payment (net)			$ 9,500
Future net base payments (9,500 × 9.3936)			89,239
Residual value guaranteed (10,000 × .5051)			5,051
Total			$103,790
Prepaid expense	$ 500		
Leased equipment	103,790		
Cash			$10,000
Obligation under capital leases			$94,290

Part 2

Date of Payment	Annual Lease Payment	Interest Expense	Reduction in Liability	Balance of Liability Account
Capitalization of lease			$103,790	
1/1/X3	$ 9,500	$ 0	$ 9,500	94,290
7/1/X3	9,500	4,715	4,785	89,505
1/1/X4	9,500	4,475	5,025	84,480
7/1/X4	9,500	4,224	5,276	79,204
1/1/X5	9,500	3,960	5,540	73,664
7/1/X5	9,500	3,683	5,817	67,847
1/1/X6	9,500	3,392	6,108	61,739
7/1/X6	9,500	3,087	6,413	55,326
1/1/X7	9,500	2,766	6,734	48,593
7/1/X7	9,500	2,430	7,070	41,522
1/1/X8	9,500	2,076	7,424	34,098
7/1/X8	9,500	1,705	7,795	26,303
1/1/X9	9,500	1,315	8,185	18,119
7/1/X9	9,500	906	8,594	9,525
12/31/9	10,000*	476	9,525**	0
	$143,000	$ 39,211	$103,790	

*Assumes residual guarantee of $10,000 will be paid.
**Minor difference of $1 due to rounding.

Problem 18: Solution

Part 1

1. Return on Fixed Assets = $\frac{\text{Net Income}}{\text{Average Fixed Assets}}$

Return on Fixed Assets = $\frac{\$550,000}{\$5,900,000}$ = 9.32%

2. Return on Total Assets = $\frac{\text{Net Income}}{\text{Average Total Assets}}$

Return on Total Assets = $\frac{\$550,000}{\$6,625,000}$ = 8.30%

3. Number of Times Interest Earned = $\frac{\text{EBIT}}{\text{Interest Expense}}$

Number of Times Interest Earned = $\frac{\$1,595,000}{\$625,000}$ = 2.55 times

Part 2

Return on Fixed Assets = $\frac{\$550,000}{\$6,325,000}$ = 8.70%

Return on Total Assets = $\frac{\$550,000}{\$7,050,000}$ = 7.80%

Number of Times Interest Earned = $\frac{1,695,000}{725,000}$ = 2.34 times

Part 3

Based on the above calculations, the noncapitalization results in higher ratios than if the lease had been capitalized. Therefore, this would generally be considered to be a wise decision, everything else being the same.

Problem 19: Solution

1. East Coast's balance sheet after acquisition:

Total Assets	$8,000,000
Debt	$5,500,000
Equity	$2,500,000
Total Claims	$8,000,000

2. West Bank's balance sheet (operating lease):

Total Assets	$5,000,000
Debt	$2,500,000
Equity	$2,500,000
Total Claims	$5,000,000

3. West Bank's balance sheet (capitalized lease):

Total Assets	$8,000,000
Debt	$5,500,000
Equity	$2,500,000
Total Claims	$8,000,000

4. Debt-equity ratio:

East Coast's debt-equity ratio = $5,500,000 / $2,500,000 = 2.20
West Bank's debt-equity ratio:
operating lease = $2,500,000 / $2,500,000 = 1.00
capital lease = $5,500,000 / $2,500,000 = 2.20

5. Return on assets and return on equity:

	Return on Assets	Return on Equity
East Coast	10%	32%
West Bank(OL)	16%	32%
West Bank (CL)	10%	32%

Problem 20: Solution

1. Present value of leasing:

Years	0	1	2	3	4	5
Lease	$9,000	$9,000	$9,000	$9,000	$9,000	$ 0
Less: Lease tax shield*		2,700	2,700	2,700	2,700	2,700
Annual cash flows	9,000	6,300	6,300	6,300	6,300	-2,700
PV factors	1	0.9259	0.8573	0.7938	0.735	0.6806
PV of cash flows	$9,000	$5,833	$5,401	$5,001	$4,631	($1,838)

Total present value of cash flows = $28,028
* Tax shield = $9,000 * 30% = $2,700

2. Present value of owning:

Years	0	1	2	3	4	5
Purchase price	$35,000					
Maintenance		$2,000	$2,000	$2,000	$2,000	$2,000
Salvage value						-5,000
Less: Depreciation tax shield		-2,400	-2,400	-2,400	-2,400	-2,400
Net purchase cost						
Annual cash flows	$35,000	(400)	(400)	(400)	(400)	(5,400)
Discount factors	1	0.9259	0.8573	0.7938	0.735	0.6806
PV of cash flows	$35,000	($370)	($343)	($318)	($294)	($3,675)

Total present value of cash flows = $32,396
1.) Depreciation tax shield = depreciation expense * tax rate
=(($35,000 - 5,000) / 5) + 2,000) * 30% = $2,400

3. Recommendation:
Recommend that RR lease the fairway mower, since the present values of cash flows is significantly lower with leasing compared to owning