EXERCISE 14-9 (20-30 minutes)

(a)  1. June 30, 2002
    Cash .................................................. 4,300,920.00
    Bonds Payable.......................... 4,000,000.00
    Premium on Bonds Payable .... 320,920.00

2. December 31, 2002
    Bond Interest Expense.................... 258,055.20
    ($4,300,920.00 X 12% X 6/12)
    Premium on Bonds Payable ............ 1,944.80
    Cash ........................................ 260,000.00
    ($4,000,000 X 13% X 6/12)

    Bond Interest Expense.................... 257,938.51
    [($4,300,920.00 – $1,944.80)
    X 12% X 6/12]
    Premium on Bonds Payable .... 2,061.49
    Cash ........................................ 260,000.00

4. December 31, 2003
    Bond Interest Expense.................... 257,814.82
    [($4,300,920.00 – $1,944.82 –
    $2,061.49) X 12% X 6/12]
    Premium on Bonds Payable .... 2,185.18
    Cash ........................................ 260,000.00
EXERCISE 14-9 (Continued)

(b) Long-term Liabilities:
   Bonds payable, 13% (due on June 30, 2022)  $4,000,000.00
   Premium on Bonds Payable*       294,728.53
   Book value of bonds payable  $4,294,728.53

   *(4,300,920.00 – 4,000,000) – (1,944.80 + 2,061.49 + 2,185.18) = $294,728.53

(c) 1. Interest expense for the period from
    January 1 to June 30, 2003 from (a) 3. $257,938.51
    Interest expense for the period from
    July 1 to December 31, 2003 from (a) 4. 257,814.82
    Amount of bond interest expense reported for 2003  $515,753.33

2. The amount of bond interest expense reported in 2003 will be greater than the amount that would be reported if the straight-line method of amortization were used. Under the straight-line method, the amortization of bond premium is $15,046 ($300,920/20). Bond interest expense for 2003 is the difference between the amortized premium, $15,046, and the actual interest paid, $520,000 ($4,000,000 X 13%). Thus, the amount of bond interest expense is $504,954, which is smaller than the bond interest expense under the effective interest method.

3. Total interest to be paid for the bond
   ($4,000,000 X 13% X 20)  $10,400,000
   Principal due in 2022  4,000,000
   Total cash outlays for the bond  14,400,000
   Cash received at issuance of the bond    (4,300,920)
   Total cost of borrowing over the life of the bond  $10,099,080

4. They will be the same.
**EXERCISE 14-21 (Continued)**

(a) The interest payment schedule is prepared as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash Interest (10%)</th>
<th>Effective Interest (1.4276%)</th>
<th>Reduction of Carrying Amount</th>
<th>Carrying Amount of Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/31/01</td>
<td>$2,000,000</td>
<td>$28,552</td>
<td>$131,448</td>
<td>$1,868,552</td>
</tr>
<tr>
<td>12/31/02</td>
<td>$160,000a</td>
<td>$28,552b</td>
<td>$131,448c</td>
<td>$1,735,227</td>
</tr>
<tr>
<td>12/31/03</td>
<td>160,000</td>
<td>26,675</td>
<td>133,325</td>
<td>1,600,000</td>
</tr>
<tr>
<td>12/31/04</td>
<td>160,000</td>
<td>24,773d</td>
<td>135,227</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Total</td>
<td>$480,000</td>
<td>$80,000</td>
<td>$400,000</td>
<td></td>
</tr>
</tbody>
</table>

- **a** $1,600,000 X 10% = $160,000.
- **b** $2,000,000 X 1.4276% = $28,552.
- **c** $160,000 – $28,552 = $131,448.
- **d** Adjusts $1 due to rounding.

(d) Interest payment entry for Bradtke Company is:

<table>
<thead>
<tr>
<th>Date</th>
<th>Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 31, 2002</td>
<td></td>
</tr>
<tr>
<td>Note Payable</td>
<td>$131,448</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>$28,552</td>
</tr>
<tr>
<td>Cash</td>
<td>$160,000</td>
</tr>
</tbody>
</table>

(e) The payment entry at maturity is:

<table>
<thead>
<tr>
<th>Date</th>
<th>Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1, 2005</td>
<td></td>
</tr>
<tr>
<td>Note Payable</td>
<td>$1,600,000</td>
</tr>
<tr>
<td>Cash</td>
<td>$1,600,000</td>
</tr>
</tbody>
</table>
EXERCISE 14-22 (25-30 minutes)

(a) The Firstar Bank should use the historical interest rate of 12% to calculate the loss.

(b) The loss is computed as follows:
Pre-restructuring carrying amount of note $2,000,000
Less: Present value of restructured future cash flows:
  Present value of principal $1,600,000
due in 3 years at 12% $1,138,848\(^a\)
  Present value of interest $160,000
    paid annually for 3 years at 12% $384,293\(^b\)
Loss on debt restructuring $476,859

\(^{a}\)$1,600,000 X .71178 = $1,138,848.
\(^{b}\)$160,000 X 2.40183 = $384,293.

December 31, 2001
Bad Debt Expense.......................... 476,859
Allowance for Doubtful Accounts ............ 476,859

(c) The interest receipt schedule is prepared as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash Interest (10%)</th>
<th>Effective Interest (12%)</th>
<th>Increase in Carrying Amount</th>
<th>Carrying Amount of Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/31/01</td>
<td></td>
<td></td>
<td></td>
<td>$1,523,151</td>
</tr>
<tr>
<td>12/31/02</td>
<td>$160,000(^a)</td>
<td>$182,777(^b)</td>
<td>$22,777(^c)</td>
<td>1,545,918</td>
</tr>
<tr>
<td>12/31/03</td>
<td>160,000</td>
<td>185,510</td>
<td>25,510</td>
<td>1,571,428</td>
</tr>
<tr>
<td>12/31/04</td>
<td>160,000</td>
<td>188,572</td>
<td>28,572</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Total</td>
<td>$480,000</td>
<td>$556,859</td>
<td>$76,859</td>
<td></td>
</tr>
</tbody>
</table>

\(^{a}\)$1,600,000 X 10% = $160,000.
\(^{b}\)$1,523,141 X 12% = $182,777.
\(^{c}\)$182,777 – $160,000 = $22,777.
(d) Interest receipt entry for Firstar Bank is:
   December 31, 2003
   Cash ................................................................. 160,000
   Allowance for Doubtful Accounts .................. 25,510
   Interest Revenue ........................................... 185,510

(e) The receipt entry at maturity is:
   January 1, 2005
   Cash ................................................................. 1,600,000
   Allowance for Doubtful Accounts .................. 400,000
   Note Receivable .............................................. 2,000,000

Note to Instructor: An entry to clear the allowance account and the
note receivable account of their balance ($400,000) would be prepared
at this time.
(This solution assumes that no reversing entries have been made.)

1. Danny Ferry Co.

3/1/01  Cash ............................................................... 236,045
        Discount on Bonds Payable ...................... 13,955
        Bonds Payable........................................ 250,000

Maturity value of bonds payable $250,000
Present value of $250,000 due in 7 periods at 6%
($250,000 X .66506) $166,265
Present value of interest payable semiannually
($12,500 X 5.58238)  69,780
Proceeds from sale of bonds (236,045)
Discount on bonds payable $ 13,955

9/1/01  Interest Expense ........................................ 14,163
        Discount on Bonds Payable...................... 1,663
        Cash................................................... 12,500

12/31/01 Interest Expense ........................................ 9,508
        Discount on Bonds Payable...................... 1,175
        ($1,762 X 4/6)  1,175
        Interest Payable ($12,500 X 4/6)....... 8,333

3/1/02  Interest Expense ........................................ 4,754
        Interest Payable........................................ 8,333
        Discount on Bonds Payable...................... 587
        ($1,762 X 2/6)  587
        Cash................................................... 12,500

9/1/02  Interest Expense ........................................ 14,368
        Discount on Bonds Payable...................... 1,868
        Cash................................................... 12,500

12/31/02 Interest Expense ........................................ 9,653
        Discount on Bonds Payable...................... 1,320
        ($1,980 X 4/6)  8,333
        Interest Payable........................................ 8,333
PROBLEM 14-5 (Continued)

### Schedule of Bond Discount Amortization

**Effective Interest Method**

**10% Bonds Sold to Yield 12%**

<table>
<thead>
<tr>
<th>Date</th>
<th>Credit Cash</th>
<th>Debit Interest Expense</th>
<th>Credit Bond Discount</th>
<th>Carrying Value of Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/1/01</td>
<td>$12,500</td>
<td>$14,163</td>
<td>$1,663</td>
<td>$236,045</td>
</tr>
<tr>
<td>9/1/01</td>
<td>12,500</td>
<td>14,262</td>
<td>1,762</td>
<td>237,708</td>
</tr>
<tr>
<td>3/1/02</td>
<td>12,500</td>
<td>14,368</td>
<td>1,868</td>
<td>241,338</td>
</tr>
<tr>
<td>9/1/02</td>
<td>12,500</td>
<td>14,480</td>
<td>1,980</td>
<td>243,318</td>
</tr>
<tr>
<td>3/1/03</td>
<td>12,500</td>
<td>14,599</td>
<td>2,099</td>
<td>245,417</td>
</tr>
<tr>
<td>9/1/03</td>
<td>12,500</td>
<td>14,725</td>
<td>2,225</td>
<td>247,642</td>
</tr>
<tr>
<td>3/1/04</td>
<td>12,500</td>
<td>14,858</td>
<td>2,358</td>
<td>250,000</td>
</tr>
</tbody>
</table>

2. Dougherty Co.

- **6/1/01**  
  - Cash ............................................................... 638,780
  - Premium on Bonds Payable ................ 38,780
  - Bonds Payable...................................... 600,000

Maturity value of bonds payable

Present value of $600,000 due in 8 periods at 5%

\[(600,000 \times 0.67684) \quad \$406,104\]

Present value of interest payable semiannually

\[(36,000 \times 6.46321) \quad 232,676\]

Proceeds from sale of bonds

\[638,780\]

Premium on bonds payable

\[\$38,780\]

- **12/1/01**  
  - Interest Expense ................................. 31,939
  - Premium on Bonds Payable ...................... 4,061
  - Cash ($600,000 X .12 X 6/12) ............ 36,000

- **12/31/01**  
  - Interest Expense ($31,736 X 1/6) .......... 5,289
  - Premium on Bonds Payable ..................... 711
  - ($4,264 X 1/6)  
    - Interest Payable ($36,000 X 1/6) ....... 6,000
PROBLEM 14-5 (Continued)

6/1/02
Interest Expense ($31,736 X 5/6) ............... 26,447
Interest Payable ........................................ 6,000
Premium on Bonds Payable .................. 3,553
($4,264 X 5/6)
Cash ................................................... 36,000

10/1/02
Interest Expense ........................................ 4,203
($31,523 X .2* X 4/6)
Premium on Bonds Payable .................. 597
($4,477 X .2 X 4/6)
Cash ................................................... 4,800

10/1/02
Bonds Payable ........................................... 120,000
Premium on Bonds Payable .................. 5,494
Gain on Redemption of Bonds .......... 4,294
Cash ................................................... 121,200

Reacquisition price
($126,000 – $120,000 X 12% X 4/12) $121,200

Net carrying amount of bonds redeemed:
Par value $120,000
Unamortized premium
[.2 X ($38,780 – $4,061 – $4,264) – $597] 5,494 (125,494)
Gain on redemption $ (4,294)

12/1/02
Interest Expense ($31,523 X .8*)................ 25,218
Premium on Bonds Payable .................. 3,582
($4,477 X .8)
Cash ($36,000 X .8)............................ 28,800

12/31/02
Interest Expense ........................................ 4,173
($31,299 X .8 X 1/6)
Premium on Bonds Payable .................. 627
($4,701 X .8 X 1/6)
Interest Payable ........................................ 4,800
($36,000 X .8 X 1/6)
PROBLEM 14-5 (Continued)

6/1/03 Interest Expense ($31,299 X .8 X 5/6)........ 20,866
Interest Payable........................................ 4,800
Premium on Bonds Payable.......................... 3,134
($4,701 X .8 X 5/6)
Cash ($36,000 X .8).................................... 28,800

12/1/03 Interest Expense ($31,064 X .8)............. 24,851
Premium on Bonds Payable.......................... 3,949
($4,936 X .8)
Cash ($36,000 X .8).................................... 28,800

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash Credit</th>
<th>Debit Interest Expense</th>
<th>Debit Bond Premium</th>
<th>Carrying Value of Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/1/01</td>
<td>$36,000</td>
<td>$31,939</td>
<td>$4,061</td>
<td>$638,780</td>
</tr>
<tr>
<td>12/1/01</td>
<td>$36,000</td>
<td>$31,736</td>
<td>4,264</td>
<td>634,719</td>
</tr>
<tr>
<td>6/1/02</td>
<td>$36,000</td>
<td>$31,523</td>
<td>4,477</td>
<td>625,978</td>
</tr>
<tr>
<td>12/1/02</td>
<td>$36,000</td>
<td>$31,299</td>
<td>4,701</td>
<td>621,277</td>
</tr>
<tr>
<td>6/1/03</td>
<td>$36,000</td>
<td>$31,064</td>
<td>4,936</td>
<td>616,341</td>
</tr>
<tr>
<td>12/1/03</td>
<td>$36,000</td>
<td>$30,817</td>
<td>5,183</td>
<td>611,158</td>
</tr>
<tr>
<td>6/1/04</td>
<td>$36,000</td>
<td>$30,558</td>
<td>5,442</td>
<td>605,716</td>
</tr>
<tr>
<td>6/1/05</td>
<td>$36,000</td>
<td>$30,284*</td>
<td>5,716</td>
<td>600,000</td>
</tr>
</tbody>
</table>

*$1.80 adjustment due to rounding.