

**EXERCISES**

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**E10-1 Bond Terminology: Fill in the Missing Blanks****L01**

1. The \_\_\_\_\_ is the amount (a) payable at the maturity of the bond and (b) on which the periodic cash interest payments are computed.
2. \_\_\_\_\_ is another name for bond principal, or the maturity amount of a bond.
3. \_\_\_\_\_ is another name for principal, or the principal amount of the bond.
4. The \_\_\_\_\_ is the rate of cash interest per period stated in the bond contract.
5. A \_\_\_\_\_ is an unsecured bond; no assets are specifically pledged to guarantee repayment.
6. \_\_\_\_\_ bonds may be called for early retirement at the option of the issuer.
7. \_\_\_\_\_ bonds may be converted to other securities of the issuer (usually common stock).

**Interpreting Information Reported in the Business Press**

As this book was being written, the business press reported the following information concerning bonds issued by AT&T:

| Bonds    | Yield | Close |
|----------|-------|-------|
| AT&T 6.5 | 7.3   | 89.5  |

Explain the meaning of the reported information. If you bought AT&T bonds with \$10,000 face value, how much would you pay (based on the preceding information reported)? Assume that the bonds were originally sold at par. What impact would the decline in value have on the financial statements for AT&T?

**E10-2**  
**L01**  
**AT&T**

**Analyzing a Conversion Feature**

Wynn Resorts owns a variety of popular gaming resorts. Their annual report contained the following information:

**Debenture Conversions**

Our convertible debentures are currently convertible at each holder's option into shares of the Company's common stock at a conversion price of \$23.00 per share (equivalent to 43.4782 shares per \$1,000 principal amount). During the fourth quarter of 2006, we issued 1,434 shares of common stock upon the conversion of \$33,000 of convertible debentures.

The current selling price for Wynn stock is \$90. Explain why some bondholders have not converted the bonds to common stock, given that they can do so at \$23 per share.

**E10-3**  
**L02**



**Wynn Resorts**

**Computing Issue Prices of Bonds for Three Cases**

Thompson Corporation is planning to issue \$100,000, seven-year, 8 percent bonds. Interest is payable each December 31. All of the bonds will be sold on January 1, 2009.

**Required:**

Compute the issue (sale) price on January 1, 2009, for each of the following independent cases (show computations):

- Case A: Market (yield) rate, 8 percent.
- Case B: Market (yield) rate, 6 percent.
- Case C: Market (yield) rate, 10 percent.

**E10-4**  
**L02,3,4**

**Computing Issue Prices of Bonds for Three Cases**

Oxford Corporation is planning to issue \$500,000 worth of bonds that mature in 10 years and pay 6 percent interest each June 30 and December 31. All of the bonds will be sold on January 1, 2009.

**Required:**

Compute the issue (sale) price on January 1, 2009, for each of the following independent cases (show computations):

- Case A: Market (yield) rate, 4 percent.
- Case B: Market (yield) rate, 6 percent.
- Case C: Market (yield) rate, 8 percent.

**E10-5**  
**L02,3,4**

**Analyzing Financial Ratios**

You have just started your first job as a financial analyst for a large stock brokerage company. Your boss, a senior analyst, has finished a detailed report evaluating bonds issued by two different companies. She stopped by your desk and asked for help: "I have compared two ratios for the companies and found something interesting." She went on to explain that the debt-to-equity ratio for Applied Technologies, Inc., is much lower than the industry average and that the one for Innovative Solutions, Inc., is much higher. On the other hand, the times interest earned ratio for Applied Technologies is much higher than the industry average, and the ratio for Innovative Solutions is much lower. Your boss then asked you to think about what the ratios indicate about the two companies so that she could include the explanation in her report. How would you respond to your boss?

**E10-6**  
**L02,5**



**E10-7 Computing the Issue Price of a Bond****L03**

Wilson Corporation issued a \$100,000 bond that matures in five years. The bond has a stated interest rate of 6 percent. On January 1, 2009, when the bond was issued, the market rate was 8 percent. The bond pays interest twice per year, on June 30 and December 31. At what price was the bond issued?

**E10-8 Recording Bond Issue and First Interest Payment with Discount (Straight-Line Amortization)**

On January 1, 2009, Seton Corporation sold a \$750,000, 8 percent bond issue (9 percent market rate). The bonds were dated January 1, 2009, pay interest each December 31, and mature in 10 years.

**Required:**

1. Give the journal entry to record the issuance of the bonds.
2. Give the journal entry to record the interest payment on December 31, 2009. Use straight-line amortization.
3. Show how the interest expense and the bonds payable should be reported on the December 31, 2009, annual financial statements.

**E10-9 Recording Bond Issue and First Interest Payment with Discount (Effective-Interest Amortization)****L03**

On January 1, 2009, Hyde Corporation sold a \$600,000, 7.5 percent bond issue (8.5 percent market rate). The bonds were dated January 1, 2009, pay interest each June 30 and December 31, and mature in four years.

**Required:**

1. Give the journal entry to record the issuance of the bonds.
2. Give the journal entry to record the interest payment on December 31, 2009. Use effective-interest amortization.
3. Show how the bond interest expense and the bonds payable should be reported on the June 30, 2009, income statement and balance sheet.

**E10-10 Recording Bond Issue: Entries for Issuance and Interest (Straight-Line Amortization)****L03**

Northland Corporation had \$300,000, 10-year bonds outstanding on December 31, 2009 (end of the accounting period). Interest is payable each December 31. The bonds were issued on January 1, 2009. The company uses the straight-line method to amortize any premium or discount. The December 31, 2009 annual financial statements showed the following:

|                               |           |
|-------------------------------|-----------|
| <b>Income statement</b>       |           |
| Bond interest expense         | \$ 23,100 |
| <b>Balance sheet</b>          |           |
| Bonds payable (net liability) | 281,100   |

**Required (show computations):**

1. What was the issue price of the bonds? Give the journal entry to record the issuance of the bonds.
2. Give the entry to record 2009 interest.

**E10-11 Analyzing a Bond Amortization Schedule: Reporting Bonds Payable****L03**

Stein Corporation sold a \$1,000 bond on January 1, 2009. The bond specified an interest rate of 6 percent payable at the end of each year. The bond matures at the end of 2011. It was sold at a market rate of 8 percent per year. The following spreadsheet was completed:

|                  | Cash Paid | Interest Expense | Amortization | Balance |
|------------------|-----------|------------------|--------------|---------|
| January 1, 2009  |           |                  |              | \$ 948  |
| End of year 2009 | \$60      | \$76             | \$16         | 964     |
| End of year 2010 | 60        | 77               | 17           | 981     |
| End of year 2011 | 60        | 79               | 19           | 1,000   |

**Required:**

1. What was the bond's issue price?
2. Did the bond sell at a discount or a premium? How much was the premium or discount?
3. What amount of cash was paid each year for bond interest?
4. What amount of interest expense should be shown each year on the income statement?
5. What amount(s) should be shown on the balance sheet for bonds payable at each year-end? (For year 2011, show the balance just before retirement of the bond.)
6. What method of amortization was used?
7. Show how the following amounts were computed for year 2010: (a) \$60, (b) \$77, (c) \$17, and (d) \$981.
8. Is the method of amortization that was used preferable? Explain why.

**Explaining Why Debt Is Sold at a Discount**

The annual report of American Airlines contained the following note:

The Company recorded the issuance of \$775 million in bonds (net of \$25 million discount) as long-term debt on the consolidated balance sheet. The bonds bear interest at fixed rates, with an average effective rate of 8.06 percent, and mature over various periods of time, with a final maturity in 2031.

After reading this note, an investor asked her financial advisor why the company didn't simply sell the notes for an effective yield of more than 8.06 percent and avoid having to account for a small discount over the next 20 years. Prepare a written response to this question.

**E10-12**  
**L03**

**American Airlines**

**Explaining Bond Features**

The annual report for Disney Company contained the following note:

The Company has outstanding \$1.3 billion of convertible senior notes due on April 15, 2023. The notes bear interest at a fixed annual rate of 2.13 percent. The notes are convertible into common stock, under certain circumstances, at a conversion rate of 33.9443 shares of common stock per \$1,000 principal amount of notes. This is equivalent to a conversion price of \$29.46.

When the notes were issued, interest rates were much higher than the 2.13 percent offered by Disney. Why would an investor accept such a low interest rate?

**E10-13**  
**L03**

**Disney**

**Evaluating Bond Features**

You are a personal financial planner working with a married couple in their early 40s who have decided to invest \$100,000 in corporate bonds. You have found two bonds that you think will interest your clients. One is a zero coupon bond issued by PepsiCo with an effective interest rate of 9 percent and a maturity date of 2018. It is callable at par. The other is a Walt Disney bond that matures in 2093. It has an effective interest rate of 9.5 percent and is callable at 105 percent of par. Which bond would you recommend and why? Would your answer be different if you expected interest rates to fall significantly over the next few years? Would you prefer a different bond if the couple were in their late 60s and retired?

**E10-14**  
**L03**

**Recording Bond Issue and First Interest Payment with Premium (Straight-Line Amortization)**

On January 1, 2009, Bochini Corporation sold a \$1,400,000, 8 percent bond issue (6 percent market rate). The bonds were dated January 1, 2009, pay interest each June 30 and December 31, and mature in four years.

**Required:**

1. Give the journal entry to record the issuance of the bonds.
2. Give the journal entry to record the interest payment on June 30, 2009. Use straight-line amortization.
3. Show how the bond interest expense and the bonds payable should be reported on the June 30, 2009 balance sheet and income statement.

**E10-15**  
**L04**

**E10-16** Recording Bond Issue and First Interest Payment with Premium (Effective-Interest Amortization)  
**L04**

On January 1, 2009, Frog Corporation sold a \$2,000,000, 10 percent bond issue (8.5 percent market rate). The bonds were dated January 1, 2009, pay interest each June 30 and December 31, and mature in 10 years.

**Required:**

1. Give the journal entry to record the issuance of the bonds.
2. Give the journal entry to record the interest payment on June 30, 2009. Use effective-interest amortization.
3. Show how the bond interest expense and the bonds payable should be reported on the June 30, 2009, financial statements.

**E10-17** Preparing a Debt Payment Schedule with Effective-Interest Method of Amortization and Determining Reported Amounts  
**L04**

Shuttle Company issued a \$10,000, three-year, 5 percent bond on January 1, 2009. The bond interest is paid each December 31. The bond was sold to yield 4 percent.

**Required:**

1. Complete a bond payment schedule. Use the effective-interest method.
2. What amounts will be reported on the income statement and balance sheet at the end of 2009, 2010, and 2011?

**E10-18** Determining Financial Statement Effects for Bond Issue and First Interest Payment with Premium (Straight-Line Amortization)  
**L04**

Grocery Corporation sold a \$300,000, 6 percent bond issue on January 1, 2009, at a market rate of 3 percent. The bonds were dated January 1, 2009, with interest to be paid each December 31; they mature in 10 years. The company uses the straight-line method to amortize any discount or premium).

**Required:**

1. How are the financial statements affected by the issuance of the bonds? Describe the impact on the debt-to-equity and times interest earned ratios, if any.
2. How are the financial statements affected by the payment of interest on December 31? Describe the impact on the debt-to-equity and times interest earned ratios, if any.
3. Show how the bond interest expense and the bonds payable should be reported on the December 31, 2009, annual financial statements.

**E10-19** Computing the Issue Price of a Bond with Analysis of Income and Cash Flow Effects  
**L04,7**

Imai Company issued a \$1 million bond that matures in 10 years. The bond has a 10 percent stated rate of interest. When the bond was issued, the market rate was 8 percent. The bond pays interest each six months. Record the issuance of the bond on June 30. Notice that the company received more than \$1 million when it issued the bond. How will this premium affect future income and future cash flows?

**E10-20** Reporting the Early Retirement of a Bond  
**L06**

Several years ago, Walters Company issued a \$600,000 bond at par value. As a result of declining interest rates, the company has decided to call the bond at a call premium of 8 percent. Record the retirement of the bonds.

**E10-21** Reporting the Early Retirement of a Bond with a Discount  
**L06**

The Nair Company issued \$500,000 in bonds at a discount five years ago. The current book value of the bonds is \$475,000. The company now has excess cash on hand and plans to retire the bonds. The company must pay a 7 percent (of par) call premium to retire the bonds. Record the retirement of the bonds.

**Determining Effects on the Statement of Cash Flows**

A number of events over the life of a bond have effects that are reported on the statement of cash flows. For each of the following events, determine whether the event affects the statement of cash flows. If so, describe the impact and specify where on the statement the effect is reported.

**E10-22**  
**L07****Required:**

1. A \$1,000,000 bond is issued at a discount. The reported amount of the bond on the balance sheet is \$960,000.
2. At year-end, \$45,000 accrued interest is reported and \$1,000 of the bond discount is amortized using the straight-line method.
3. Early in the second year, accrued interest is paid. At the same time, \$9,000 interest that accrued in the second year is paid.
4. The company elects to retire the debt in the fifth year. At that time, the reported carrying value of the bonds is \$960,000 and the company reports a \$20,000 gain on the early retirement of debt.

**EXERCISES****E10-1.**

1. Bond principal, par value, or face value
2. Par value or face value
3. Face value or par value
4. Stated rate, coupon rate, or contract rate
5. Debenture
6. Callable bonds
7. Convertible bonds

**E10-2.**

The AT&T bonds have a coupon interest rate of 6.5%. If bonds with a \$10,000 face value were purchased, the issue price would be \$8,950 and they would provide a cash yield of 7.3%. A decline in value after issuance would have no impact on AT&T's financial statements.

**E10-3.**

When a bond offers a conversion feature, its value will be affected by the value of the common stock. As the price of the stock goes up, the bond becomes more valuable. In the case of the Wynn bond, each \$1,000 face value bond can be converted into 43.4782 shares of stock. Given that the stock now sells for \$90 per share, each bond is worth at least \$3,913 based on this conversion feature. A bondholder who needs cash can simply sell the bond rather than converting it to stock and then selling the stock. In many cases, it is better to hold a company's bond than its stock. Such is the case with Wynn. The company's stock does not pay dividends but the bonds do pay periodic interest. Therefore, holders of bonds can participate in the appreciation of the stock while earning interest on their investment.

**E10-4.**

## CASE A:

|  |                  |                                 |
|--|------------------|---------------------------------|
| \$100,000 x 0.5835.....                        | \$ 58,350        |                                 |
| \$8,000 x 5.2064.....                          | 41,651           |                                 |
| Issue price (market and stated rate same)..... | <u>\$100,001</u> | (at par; \$1<br>rounding error) |

## CASE B:

|  |                  |                |
|--|------------------|----------------|
| \$100,000 x 0.6651.....                              | \$ 66,510        |                |
| \$8,000 x 5.5824.....                                | 44,659           |                |
| Issue price (market rate less than stated rate)..... | <u>\$111,169</u> | (at a premium) |

## CASE C:

|  |                  |                 |
|--|------------------|-----------------|
| \$100,000 x 0.5132.....                              | \$ 51,320        |                 |
| \$8,000 x 4.8684.....                                | 38,947           |                 |
| Issue price (market rate more than stated rate)..... | <u>\$ 90,267</u> | (at a discount) |

**E10-5.**

## CASE A:

|  |                  |                |
|--|------------------|----------------|
| \$500,000 x 0.6730.....                              | \$ 336,500       |                |
| \$15,000 x 16.3514.....                              | 245,271          |                |
| Issue price (market rate less than stated rate)..... | <u>\$581,771</u> | (at a premium) |

## CASE B:

|   |                  |                                  |
|---|------------------|----------------------------------|
| \$500,000 x 0.5537.....                             | \$ 276,850       |                                  |
| \$15,000 x 14.8775.....                             | 223,163          |                                  |
| Issue price (market rate and stated rate same)..... | <u>\$500,013</u> | (at par, \$13<br>rounding error) |

## CASE C:

|  |                   |                 |
|--|-------------------|-----------------|
| \$500,000 x 0.4564.....                              | \$ 228,200        |                 |
| \$15,000 x 13.5903.....                              | 203,855           |                 |
| Issue price (market rate more than stated rate)..... | <u>\$ 432,055</u> | (at a discount) |

**E10-6.**

Applied Technologies' ratios look better than Innovative Solutions' ratios. Applied Technologies has a lower debt-to-equity ratio than Innovative Solutions. This means that they have less debt in their capital structure, and therefore, are a less leveraged company and have less risk than Innovative Solutions. Applied Technologies' times-interest-earned ratio is higher than the ratio for Innovative Solutions. This also makes Applied Technologies a less risky company than Innovative Solutions because Applied Technologies generates a larger amount of income compared to its obligatory payments to creditors than Innovative Solutions.

**E10-7.**

Computations:

Interest:

$$\$100,000 \times 6\% \times 1/2 = \$3,000$$

Present value:

$$\$100,000 \times 0.6756 = 67,560$$

$$\$ 3,000 \times 8.1109 = \underline{24,333}$$

$$\text{Issue price} = \underline{\underline{\$91,893}}$$

**E10-8.**

Computations:

Interest:

$$\$750,000 \times 8\% = \$ 60,000$$

Present value:

$$\$750,000 \times 0.4224 = 316,800$$

$$\$ 60,000 \times 6.4177 = \underline{385,062}$$

$$\text{Issue price} = \underline{\underline{\$701,862}}$$

Req. 1

January 1:

|  |         |         |
|--|---------|---------|
| Cash (+A).....                           | 701,862 |         |
| Discount on Bonds Payable (+XL, -L)..... | 48,138  |         |
| Bonds Payable (+L).....                  |         | 750,000 |

Req. 2

December 31:

|  |        |        |
|--|--------|--------|
| Bond Interest Expense (+E, -SE).....     | 64,814 |        |
| Discount on Bonds Payable (-XL, +L)..... |        | 4,814  |
| Cash (-A).....                           |        | 60,000 |

Req. 3

December 31, 2009:

Income statement:

|                       |                  |  |
|-----------------------|------------------|--|
| Bond interest expense | <u>\$ 64,814</u> |  |
|-----------------------|------------------|--|

Balance sheet:

Long-term Liabilities

|  |               |                  |
|--|---------------|------------------|
| Bonds payable  | \$750,000     |                  |
| Less: Unamortized discount (\$48,138 - \$4,814)..... | <u>43,324</u> | <u>\$706,676</u> |

**E10-9.**

Computations:

|                        |   |                  |
|------------------------|---|------------------|
| Interest:              |   |                  |
| \$600,000 x 7.5% x 1/2 | = | \$ 22,500        |
| Present value:         |   |                  |
| \$600,000 x 0.7168     | = | 430,080          |
| \$ 22,500 x 6.6638     | = | 149,936          |
| Issue price            | = | <u>\$580,016</u> |

Req. 1

January 1:

|  |         |         |
|--|---------|---------|
| Cash (+A).....                           | 580,016 |         |
| Discount on Bonds Payable (+XL, -L)..... | 19,984  |         |
| Bonds Payable (+L).....                  |         | 600,000 |

Req. 2

June 30:

|  |        |        |
|--|--------|--------|
| Bond Interest Expense (+E, -SE) (\$580,016 x 8.5% x 1/2) ..... | 24,651 |        |
| Discount on Bonds Payable (-XL, +L).....                       |        | 2,151  |
| Cash (-A) .....  |        | 22,500 |

Req. 3

June 30, 2009:

Income statement:

|                       |                  |  |
|-----------------------|------------------|--|
| Bond interest expense | <u>\$ 24,651</u> |  |
|-----------------------|------------------|--|

Balance sheet:

Long-term Liabilities

|  |               |                  |
|--|---------------|------------------|
| Bonds payable  | \$600,000     |                  |
| Less: Unamortized discount (\$19,984 – \$2,151)..... | <u>17,833</u> | <u>\$582,167</u> |

**E10-10.**

Req. 1

Issue price:

- Par, \$300,000 – Carrying value at end of 1 year, \$281,100 = \$18,900 (unamortized discount for 9 remaining years).
- \$18,900 ÷ 9 years = \$2,100 discount amortization per year (straight line).
- \$281,100 – \$2,100 = \$279,000 issue price (discount \$21,000).

Issuance entry:

|   |         |         |
|---|---------|---------|
| Cash (+A).....                            | 279,000 |         |
| Discount on bonds payable (+XL, -L) ..... | 21,000  |         |
| Bonds payable (+L) .....                  |         | 300,000 |

Req. 2

Coupon (stated interest) rate:

- Reported interest expense, \$23,100 – Discount amortized, \$2,100 = \$21,000 (cash interest).
- \$21,000 ÷ \$300,000 = 7% coupon (stated interest) rate.

Interest expense:

|   |        |        |
|---|--------|--------|
| Interest expense (+E, -SE) .....                                | 23,100 |        |
| Discount on bonds payable (\$21,000 ÷ 10 years) (-XL, +L) ..... |        | 2,100  |
| Cash (\$300,000 x 7%) (-A).....                                 |        | 21,000 |

**E10-11.**

- Issue price: \$948. Stated rate, 6%; effective or yield rate, 8% (both were given).
- Discount: \$1,000 – \$948 = \$52.
- \$1,000 x 6% = \$60.
- 2009, \$76; 2010, \$77; 2011, \$79.
- Balance sheet:
 

|      |         |                                 |
|------|---------|---------------------------------|
| 2009 | \$ 964  |                                 |
| 2010 | \$ 981  |                                 |
| 2011 | \$1,000 | (immediately before retirement) |
- Effective-interest amortization was used.

**E10-11. (continued)**

7. (a)  $\$1,000 \times 6\% = \$60$ .  
(b)  $\$964 \times 8\% = \$77$  (rounded).  
(c)  $\$77 - \$60 = \$17$ .  
(d)  $\$964 + \$17 = \$981$ .
8. Effective-interest amortization measures the amount of interest expense and net liability for each period on a present value basis. The interest expense and related amortization are based on the actual unpaid balance of the debt and the effective interest rate. Straight-line amortization is an approximation that does not take these factors into consideration. The effective-interest method is conceptually preferable but the straight-line method is used widely in practice because of computational simplicity and the materiality concept.

**E10-12.**

The effective interest rate for a bond is determined by market forces and not the company. American was able to specify the coupon rate for the bonds which determines the periodic interest payments. It appears that American intended to sell the bonds close to par value which would be achieved by having a coupon rate that was the same as the market rate. The market rate of interest continually changes as the result of such factors as inflation expectations and the level of business activity. It is virtually impossible to issue a bond at a point when the coupon rate and the market rate are exactly the same.

**E10-13.**

Students will typically offer one of two explanations:

- Normally, bonds that offer less than the market rate sell at a discount that results in a bond yield equal to the market rate of interest. While this is generally true, we do not think it explains the low interest rate for the Disney bond.
- The Disney bond includes a feature not seen in most bonds. It provides investors with the opportunity to participate in stock price appreciation while holding a more conservative investment. The conversion feature permits bond holders to convert their bonds into stock at a price of \$29.46 per share. When this problem was written, Disney stock was selling for \$33 per share. This conversion feature enhances the potential return for investors and permits the issuer to pay a lower rate of interest.

**E10-14.**

Assuming that both companies offer the same business risk, many people might prefer the bond that had the slightly higher yield which is Walt Disney at 9.5%. If interest rates were to fall significantly, companies might decide to call their bonds and issue new ones at a lower interest rate. In this case, a zero coupon bond offers an extra margin of protection. A zero is sold at a deep discount (say 60% of par). It would be very unusual to see a company call such a bond if it were callable at par. In this case, the PepsiCo bond would be preferred.

Many people who are retired desire to have a steady income without engaging in time-consuming transactions. These people would probably not want to buy a zero coupon bond which paid interest only at maturity.

**E10-15.**

Computations:

Interest:

$$\$1,400,000 \times 8\% \times 1/2 = \$ 56,000$$

Present value:

$$\$1,400,000 \times 0.7894 = 1,105,160$$

$$\$ 56,000 \times 7.0197 = \underline{393,103}$$

$$\text{Issue price} = \underline{\underline{\$1,498,263}}$$

Req. 1

January 1:

|                                    |           |           |
|------------------------------------|-----------|-----------|
| Cash (+A).....                     | 1,498,263 |           |
| Premium on Bonds Payable (+L)..... |           | 98,263    |
| Bonds Payable (+L).....            |           | 1,400,000 |

Req. 2

June 30:

|                                      |        |        |
|--------------------------------------|--------|--------|
| Bond Interest Expense (+E, -SE)..... | 43,717 |        |
| Premium on Bonds Payable (-L).....   | 12,283 |        |
| Cash (-A).....                       |        | 56,000 |

Req. 3

June 30, 2009:

Income statement:

|                       |                  |  |
|-----------------------|------------------|--|
| Bond interest expense | <u>\$ 43,717</u> |  |
|-----------------------|------------------|--|

Balance sheet:

Long-term Liabilities

|  |               |                    |
|--|---------------|--------------------|
| Bonds payable                                      | \$1,400,000   |                    |
| Plus: Unamortized premium (\$98,263 – \$12,283)... | <u>85,980</u> | <u>\$1,485,980</u> |

**E10-16.**

Computations:

Interest:

$$\$2,000,000 \times 5\% = \$ 100,000$$

Present value:

$$\$2,000,000 \times 0.4350 = 870,000$$

$$\$ 100,000 \times 13.2944 = \underline{1,329,440}$$

$$\text{Issue price} = \underline{\underline{\$2,199,440}}$$

Req. 1

January 1:

|                                    |           |           |
|------------------------------------|-----------|-----------|
| Cash (+A).....                     | 2,199,440 |           |
| Premium on Bonds Payable (+L)..... |           | 199,440   |
| Bonds Payable (+L).....            |           | 2,000,000 |

Req. 2

June 30:

|   |        |         |
|---|--------|---------|
| Bond Interest Expense (+E, -SE) (\$2,199,440 x 4.25%) ..... | 93,476 |         |
| Premium on Bonds Payable (-L).....                          | 6,524  |         |
| Cash (-A).....  |        | 100,000 |

Req. 3

June 30, 2009:

Income statement:

|                       |                  |  |
|-----------------------|------------------|--|
| Bond interest expense | <u>\$ 93,476</u> |  |
|-----------------------|------------------|--|

Balance sheet:

Long-term Liabilities

|  |                |                    |
|--|----------------|--------------------|
| Bonds payable                                      | \$2,000,000    |                    |
| Plus: Unamortized premium (\$199,440 – \$6,524)... | <u>192,916</u> | <u>\$2,192,916</u> |

**E10-17.**

Req. 1

| Date       | Cash Interest | Interest Expense      | Premium Amortization | Net Liability Balance |
|------------|---------------|-----------------------|----------------------|-----------------------|
| 1/1/2009   |               |                       |                      | \$10,278              |
| 12/31/2009 | \$500         | \$10,278 x 4% = \$411 | \$89                 | 10,189                |
| 12/31/2010 | 500           | \$10,189 x 4% = \$408 | 92                   | 10,097                |
| 12/31/2011 | 500           | \$10,097 x 4% = \$404 | 96                   | 10,001*               |

\* \$1 rounding error

Present value computation:

|            |                  |                 |
|------------|------------------|-----------------|
| Principal: | \$10,000 x .8890 | \$ 8,890        |
| Interest:  | 500 x 2.7751     | 1,388           |
|            | Issue price      | <u>\$10,278</u> |

Req. 2

|                        | 2009     | 2010     | 2011      |
|------------------------|----------|----------|-----------|
| December 31:           |          |          |           |
| Interest expense ..... | \$411    | \$408    | \$404     |
| Bond liability.....    | \$10,189 | \$10,097 | \$10,000* |

\*Immediately before repayment of principal

**E10-18.**

Req. 1

Cash is increased on the balance sheet. The statement of cash flows shows an inflow from financing activities. Bonds payable and premium on bonds payable are increased on the balance sheet. The debt-to-equity ratio will be increased.

January 1:

|                                     |         |                  |
|-------------------------------------|---------|------------------|
| Cash (+A).....                      | 376,774 |                  |
| Premium on bonds payable (+L) ..... |         | 76,774           |
| Bonds payable (+L) .....            |         | 300,000          |
| Principal: \$300,000 x .7441 .....  |         | \$223,230        |
| Interest: \$18,000 x 8.5302 .....   |         | 153,544          |
| Issue (sale) price .....            |         | <u>\$376,774</u> |

Req. 2

The interest expense will be increased on the income statement and the cash will be decreased on the balance sheet. The premium on bonds payable will be decreased on the balance sheet.

The debt-to-equity ratio will be decreased and the times-interest-earned ratio will be decreased.

December 31:

|   |        |        |
|---|--------|--------|
| Interest expense (+E, -SE) .....                            | 10,323 |        |
| Premium on bonds payable (\$76,774 ÷ 10 periods) (-L) ..... | 7,677  |        |
| Cash (\$300,000 x 6%) (-A).....                             |        | 18,000 |

Req. 3

December 31, 2009:

Income Statement:

|                       |          |
|-----------------------|----------|
| Bond Interest Expense | \$10,323 |
|-----------------------|----------|

Balance Sheet:

|   |           |           |
|---|-----------|-----------|
| Long-term Liabilities                         |           |           |
| Bonds Payable                                 | \$300,000 |           |
| Add: Unamortized premium (\$76,774 - \$7,677) | 69,097    | \$369,097 |

**E10-19.**

Req. 1

Computations:

Interest:

$$\$1,000,000 \times 10\% = \$100,000 \div 2 = \$50,000$$

Present value

$$\$ 1,000,000 \times .4564 = 456,400$$

$$\$ 50,000 \times 13.5903 = 679,515$$

$$\underline{\underline{\$ 1,135,915}}$$

June 30:

|                         |           |           |
|-------------------------|-----------|-----------|
| Cash (+A) .....         | 1,135,915 |           |
| Bond payable (+L) ..... |           | 1,000,000 |
| Bond premium (+L) ..... |           | 135,915   |

Req. 2

The amortization of bond premium results in cash payments for interest that are higher than reported interest expense for the period.

**E10-20.**

|                                   |         |         |
|-----------------------------------|---------|---------|
| Bond payable (-L) .....           | 600,000 |         |
| Loss on bond call (+E, -SE) ..... | 48,000  |         |
| Cash (-A) .....                   |         | 648,000 |

**E10-21.**

|                                   |         |         |
|-----------------------------------|---------|---------|
| Bond payable (-L) .....           | 500,000 |         |
| Loss on bond call (+E, -SE) ..... | 35,000  |         |
| Bond discount (-XL,+ L) .....     |         | 25,000  |
| Cash (-A) .....                   |         | 510,000 |

**E10-22.**

1. Impacts Statement of Cash Flows (SCF) : report \$960,000 inflow in financing section
2. Does not impact SCF
3. Impacts SCF : report \$54,000 payment in operating activities section
4. Impacts SCF : report \$940,000 payment in financing section