CHAPTER 10
ACCOUNTING FOR LONG-TERM LIABILITIES

Key Terms and Concepts to Know

Present Value:
There is an old saying that time is money. Applied to accounting, it means that a dollar today is worth more to an investor or company than a dollar to be received in the future. The sooner the dollar is received, the longer it can be invested and used to generate more dollars. Therefore in order to properly compare a series of cash inflows and outflows occurring in various years, present value must be used to restate all of the cash inflows and outflows in current period dollars.

- Present value is based on compound interest, that is, current period interest is based on the principal amount plus the interest for all prior periods.
- Future cash flows are discounted back to the year when the bond was issued. The term discounting is appropriate because the future cash flows are worth less than their full amount today because we had to wait to receive them.
- Certain future cash flows may be annuities if they consist of equal amounts received of paid with equal frequency. Annuities are discounted using the Present value of an Annuity of $1 table.
- All other future cash flows are considered single payment cash flows. Single payments are discounted using the Present Value of $1 table.

Bonds:

- Bonds are a medium to long-term financing alternative to issuing stock.
- Bonds are issued or sold face amount or par, at a discount if they pay less than the current market rate of interest or a premium if they pay more than the current market interest rate.
- Bonds typically pay interest twice a year, i.e., semi-annually.
- The price of a bond is stated as a percent of face value, although the percent sign is not used.
    - If a $1,000 bond is selling at 101, it is selling at 101% of face value or $1,010. The “extra” $10 received when the bond is issued or sold represents the premium.
    - If a $1,000 bond is selling at 99, it is selling at 99% of face value or $990. The $10 not received when the bond is issued or sold represents the discount.

- Required journal entries include
  - issuing the bond at par, discount or premium
  - calculating and recording the bond interest payments
  - calculating and recording amortization of the discount or premium
  - retiring the bonds at maturity
  - retiring the bonds prior to maturity and calculating the gain or loss on retirement
- Calculate the interest expense for the year including the amortization of the premium or discount.

Long-term Notes Payable:

- Installment notes are loans that are repaid in a series of equal payments over a number of years.
- The payment amounts generally remain constant, with each successive payment made up of a decreasing amount going toward interest expense and an increasing amount going toward principal repayment.
- If the notes are to be repaid in a series of equal payments over a number of years, the principal amount of the note must be divided by the present value of an annuity factor to calculate the amount of each payment. The interest portion of each payment is the notes' interest rate X the balance of the note outstanding for the prior period.

Leases:

- Leases are rental agreements.
- Operating leases provide use of the property to the lessee with the lessor retaining the risks and rewards of ownership during and after the lease. Lease payments are expense to the lessee.
- Capital leases transfer the risks and rewards of ownership to the lessee. These leases are less like a rental and more like a purchase agreement which provides for periodic payments over a specified time period. The lessee records the capital lease as debt and records the leased asset as a fixed assets as if it had been purchased.

Compute the debt-to-equity ratio

Key Topics to Know

Present Value

Present Value of a Lump Sum

- A lump sum is an amount expected to be received or paid in the future
- The unknown is what the amount is worth in today's dollars
- To solve, the following information must be known:
  - the number of interest compounding periods
  - the interest rate per compounding period
- Use the Present Value of $1 Table by selecting the row equal to the number of periods and the column equal to the interest rate

Example #1:

If the current rate of interest is 10% and interest is compounded semiannually, what is the present value of receiving $10,000 at the end of 7 years?

Solution #1:

There are 14 interest compounding periods (7 years x 2)
The interest rate per compounding period is 5% (10% / 2)
Rate from the PV of $1 Table = .50507
Present value = 10,000 x .50507 = $5,050.70

Present Value of an Annuity

- An annuity is a series of equal payments expected to be received or paid at regular future intervals
- The unknown is what the series of payments or receipts is worth in today's dollars?
- To solve, the following information must be known:
  - the number of interest compounding periods
  - the interest rate per compounding period
- Use the Present Value of an Annuity of $1 Table by selecting the row equal to the number of periods and the column equal to the interest rate

Example #2:

If the current interest rate is 12% and interest is compounded semiannually, what is the present value of receiving $5,000 each year for 10 years?

Solution #2:

There are 20 interest compounding periods (10 years x 2)
The interest rate per compounding period is 6% (12% / 2)
Rate from the PV of $1 Table = 11.46992
Present value = 5,000 x 11.46992 = $57,349.60

Practice Problem #1

a. Alpha Company is considering prepaying their rent for the next 4 years to avoid a price increase. Currently they pay $8,000 per year. Calculate the present value of the rent payments to determine what amount Alpha should pay today if current interest rates are 12% and interest is compounded annually.

b. Omega, Inc. won a lawsuit and will be receiving $400,000 at the end of 5 years. Calculate the present value of this award if interest is compounded semiannually and the current interest rate is 1) 18% and 2) 10%.

c. Bonnie has just received news of an inheritance. She will be receiving $10,000 per year for the next 20 years and a lump sum payout after 20 years of $200,000. Calculate the present value of her inheritance if the current interest rate is 9% and it is compounded annually.

Basic Relationships for Premiums and Discounts

The relationship between the current market interest rate and the stated or contract interest rate for the bonds determines or influences the bond price, cash proceeds from issuance, carrying value and interest expense. The following three tables summarize these relationships:

If the current market interest rate is the same as the contract interest rate:

1. Bond sells at face value or par
2. Cash proceeds from issuance will be the same as the face value
3. Price of the bonds will be 100
4. Carrying value of the bonds will be the same as face value throughout term of the bonds
5. Cash paid for interest will be equal to interest expense

If the current market interest rate is greater than the contract interest rate:

1. Bond sells at a discount
2. Cash proceeds from issuance will be less than the face value
3. Price of the bonds will be less than 100
4. Carrying value of the bonds will be less than face value throughout the term of the bonds
5. Cash paid for interest will be less than interest expense because of the amortization of the discount

If the current market interest rate is less than the contract interest rate:

1. Bond sells at a premium
2. Cash proceeds from issuance will be greater than the face value
3. Price of the bonds will be greater than 100
4. Carrying value of the bonds will be greater than face value throughout the term of the bonds
5. Cash paid for interest will be greater than interest expense because of amortization of the premium

Selling Price of a Bond

Calculating the Selling Price of a Bond

- Companies usually pay interest to the bondholder semiannually and repay the face value of the bond at maturity.
- The series of interest payments represents an annuity.
- The repayment of face value at maturity represents a lump sum or single payment
- The selling price of a bond is calculated as:
  The present value of the face value (lump sum) +
  The present value of the interest payments (annuity)
- Interest payments are calculated using the contract interest rate
- The present value of the future cash outflows is calculated using the current market interest rate
- The bond sells at a premium if the present value exceeds the face value.
- The bond sells at a discount if the present value is less than the face value.
- Selling price is frequently expressed as a percentage (without the % sign) of face value: (selling price / face value) x 100 = price.

Selling Bonds at a Premium

When a bond sells at a premium – a price greater than face value – a credit is recorded in Premium on Bonds Payable for the amount of the premium. The carrying value of the bond is the face amount recorded in bonds payable plus the unamortized premium recorded in the premium on bonds payable account.

Example #3:

Beta Company issued $4,000,000 of 10-year, 11% bonds on January 4. The Bonds pay interest semiannually on June 30 and December 31. If the current market rate of interest is 10%, at what price will the bonds sell for?

Solution#3:

Interest payment	$4,000,000 x 11% x ½ year =	$220,000
Number of periods	10 years x 2 =	20
Interest rate per period	10% / 2 =	5%
PV of face amount	$4,000,000 x .37689	$1,507,560
PV of interest	220,000 x 12.46221	2,741,686
Selling price of bond		$4,249,246

This bond is selling at a premium – a price higher than its face value. The premium on this bond is $249,246 ($4,000,000 – 4,249,246).

The price of the bond is 108.23 = 4,249,246 / 4,000,000.

Journal Entry for Issuance of Bonds:

Cash	4,249,246	
Bonds payable		4,000,000
Premium on bonds payable		249,246

Selling Bonds at a Discount

When a bond sells at a discount – a price less than face value – a debit is made to Discount on Bonds Payable for the amount of the discount. The carrying value of the bond is the face amount recorded in bonds payable less the unamortized discount recorded in the discount on bonds payable account.

Example #4

The next year, Beta Company issued $4,000,000 of 10-year, 11% bonds on January 4. The Bonds pay interest semiannually on June 30 and December 31. If the current market rate of interest is 12%, at what price will the bonds sell for?

Solution#4:

Interest payment	$4,000,000 x 11% x ½ year =	$220,000
Number of periods	10 years x 2 =	20
Interest rate per period	12% / 2 =	6%
PV of face amount	$4,000,000 x .31180	$1,247,200
PV of interest	220,000 x 11.46992	2,523,382
Selling price of bond		$3,770,582

This bond is selling at a discount – a price less than its face value. The discount on this bond is $229,418 ($4,000,000 – 3,770,582).

The price of the bond is 94.26 = 3,770,582 / 4,000,000.

Journal Entry for Issuance of Bonds:

Cash	3,770,582	
Bonds payable		4,000,000
Discount on bonds payable	229,418	

Amortizing Premiums and Discounts

Since the premium or discount is due to the difference in interest rates, it must be amortized over the life of the bonds to adjust the interest expense paid to the interest expense per the current market interest rate.

- A bond premiums represents a reduction in interest expense
- A bond discount represents an increase in interest expense
- A portion of the premium or discount must be amortized to interest expense each period
- Amortization is recorded either at the end of the fiscal year or each time interest is paid.

From Example #3:

Since these were 10-year bonds, the amortization on each interest payment date, using the straight-line method, would be as follows:

$$\frac{\$249{,}246 \text{ premium}}{20 \text{ periods}} = \$12{,}462.30/\text{period}$$

Journal Entry for Amortization of Premium:

Premium on Bonds Payable	12,462.30	
Interest Expense		12,462.30

The debit to Premium on Bonds Payable reduces that account and reduces the carrying value of the bonds.
The credit to Interest Expense reduces interest expense.

From Example #4:

Since these were 10-year bonds, the amortization on each interest payment date, using the straight-line method, would be as follows:

$$\frac{\$229,418 \text{ discount}}{20 \text{ periods}} = \$11,470.90/\text{period}$$

Journal Entry for Amortization of Discount:

Interest Expense	11,470.90	
Discount on Bonds Payable		11,470.90

The credit to Discount on Bonds Payable reduces that account and increases the carrying value of the bonds.
The debit to Interest Expense increases interest expense.

Interest Expense

As shown in Examples #3 and #4, interest PAID is calculated as:

	Principal x Rate x Time	
Interest payment	$4,000,000 x 11% x ½ year =	$220,000

If the bonds are issued at par, that is, when the market and contract interest rates are the same, then the interest expense is equal to the interest paid.

Journal Entry for Each Interest Payment:

Interest Expense	220,000	
Discount on Bonds Payable		220,000

Typically the entries for the interest paid and the amortization of the premium or discount are combined as follows:

From Example #3:

Premium on Bonds Payable	12,462.30	
Interest Expense	207,537.70	
Cash		220,000.00

From Example #4:

Interest Expense	231,470.90	
Cash		220,000.00
Discount on Bonds Payable		11,470.90

As noted above:

- Amortization of a bond premium represents a reduction in interest expense compared to the interest paid.
- Amortization of a bond discount represents an increase in interest expense compared to the interest paid.

The total interest expense over the life of the bonds is the interest paid plus the discount or minus the premium:

	From Example #3:	From Example #4:
Interest payment	$220,000	$220,000
Number of periods	20	20
Interest paid	$4,400,000	$4,400,000
Premium	(249,246)	
Discount		229,418
Interest Expense	$4,150,754	$4,629,418

Practice Problem #2:

Gamma, Inc. issued $8,000,000 of 7-year, 9% bonds on January 2. The bonds pay interest semiannually on June 30 and December 31. The market rate of interest is 12%.

- Calculate the selling price of the bonds, rounded to the nearest dollar, and journalize the entry to issue the bonds at that price.
- Journalize the entry to pay interest and to amortize the discount or premium on June 30.

Practice Problem #3:

The next year, Gamma, Inc. issued 8,000,000 of 7-year, 9% bonds on January 2. The bonds pay interest semiannually on June 30 and December 31. The current market rate of interest is 8%.

- Calculate the selling price of the bonds, rounded to the nearest dollar, and journalize the entry to issue the bonds at that price.
- Journalize the entry to pay interest and to amortize the discount or premium on June 30.

Bond Redemptions

Bond redemptions may occur on the maturity date or on a date prior to the maturity date. If the bonds are retired or redeemed at maturity the journal entry is:

Bonds Payable	4,000,000	
Cash		4,000,000

If all or some of the bonds are redeemed prior to maturity:

- The portion of the bond premium or discount related to the bonds redeemed must be amortized to redemption date.
- The bonds payable account will be debited for the face amount of the bonds redeemed.
- The premium account will be debited or the discount account will be credited for the premium or discount related to the bonds redeemed.
- A gain will be recorded if the redemption price is less than the carrying value of the bonds.
- A loss will be recorded if the redemption price is greater that the carrying value of the bonds
- Carrying Value = Bonds Payable + Premium on Bonds Payable OR
  Bonds Payable – Discount on Bonds Payable

From Example #3:

At the end of the 6th year, the bonds were redeemed at 102:

Premium on Bonds Payable Balance:		
Amortization:	$24,924.60 * 6 years =	$149,547.60
Account balance:	$249,246 – 149,547.60 =	$99,698.40
Bonds Payable Balance	4,000,000	
Redemption Price	4,000,000 * 102% =	$4,080,000.00
Carrying Value	4,000,000 + 99,698.40 =	4,099,698.40
Gain (Redemption < CV)		$19,698.40

Journal Entry

Premium on bonds payable	99,698.40	
Bonds payable	4,000,000.00	
Cash		4,080,000.00
Gain on redemption		19,698.40

From Example #4:

At the end of the 6th year, the bonds were redeemed at 99:

Premium on Bonds Payable Balance:		
Amortization:	$22,941.80 * 6 years =	$137,650.80
Account balance:	$229,418 – 137,650.80 =	$91,767.20
Bonds Payable Balance	4,000,000	
Redemption Price	4,000,000 * 98% =	$3,920,000.00
Carrying Value	4,000,000 - 91,767.20 =	3,908,232.80
Loss (Redemption > CV)		$11,767.20

Journal Entry

Discount on bonds payable		91,767.20
Bonds payable	4,000,000.00	
Cash		3,920,000.00
Loss on redemption	11,767.20	

Practice Problem #4:

Journalize the following entries.

2011

July 1 Issued $20,000,000 of 8-year 12% callable bonds dated July 1, 200
an effective interest rate of 14%, receiving cash of $18,110,780.
Interest is paid semiannually on December 31 and June 30.

Dec. 31 Paid the semiannual interest on the bonds.
Recorded the bond discount amortization for 6 months using the straight-line method.
Closed the interest expense account.

2012

June 30 Paid the semiannual interest on the bonds.

July 1 Redeemed the bonds at 95.
(Record amortization for six months on July 1)

Practice Problem #5

Journalize the following entries. Round all amounts to the nearest dollar.

2008

Sept 2 Issued $5,000,000 of 10-year, 15% callable bonds at an effective interest rate of 14% receiving cash of $5,529,704. Interest is payable semiannually on September 1 and March 1.

Dec. 31 Accrued 4 months of interest on the bonds.
Amortized the bond premium for 4 months.
Closed the interest expense account.

2009

Mar 1 Paid the semiannual interest on the bonds.

Sept 1 Paid the semiannual interest on the bonds.

Dec. 31 Accrued 4 months of interest on the bonds.
Amortized the bond premium for the year.
Closed the interest expense account

2010

Feb. 2 Redeemed the bonds at 108. The balance in the Premium on Bonds account after amortizing to the date of sale is $454,663.

Practice Problem #6

On January 1, 2012, Julee Enterprises borrows $30,000 to purchase a new Toyota Highlander by agreeing to a 6%, 4-year note with the bank. The first installment payment will be due on January 1, 2013.

Required: Record the issuance of the note payable and the first two annual payments.

Sample True / False Questions

1. As a company's level of debt increases, bankruptcy risk increases.
   True False

2. Bonds are the most common form of corporate debt.
   True False

3. Secured bonds are backed by the federal government.
   True False

4. Unsecured bonds are not backed by a specific asset.
   True False

5. A callable bond allows the borrower to repay the bonds before their scheduled maturity date at a specified call price.
   True False

6. Convertible bonds allow the investor to convert each bond into a specified number of shares of common stock.
   True False

7. The market interest rate does not change over time.
   True False

8. Bonds issued below face amount are said to be issued at a discount.
   True False

9. The amount reported on the balance sheet for bonds payable is equal to the carrying value at the balance sheet date.
   True False

10. When bonds are issued at a discount (below face amount), the carrying value and the corresponding interest expense increase over time.
    True False

11. When bonds are issued at a premium (above face amount), the carrying value and the corresponding interest expense increase over time.
    True False

12. Interest expense is calculated as the carrying value times the market rate.
    True False

13. The market value of bonds moves in the opposite direction of interest rates.
    True False

14. At the maturity date, the carrying value will equal the face amount of the bond.
    True False

15. Losses/gains on the early extinguishment of debt are reported as part of operating income in the income statement.
    True False

16. Monthly installment payments on a note payable include both an amount that represents interest and an amount that represents a reduction of the outstanding loan balance.
    True False

17. A gain or loss is recorded on bonds retired at maturity.
    True False

18. The stated interest rate is the rate quoted in the bond contract used to calculate the cash payments for interest.
    True False

19. Interest expense incurred when borrowing money, as well as dividends paid to stockholders, are tax-deductible.
    True False

20. A gain or loss is always recorded on bonds retired prior to maturity.
    True False

SAMPLE MULTIPLE CHOICE QUESTIONS

1. Number of times interest charges earned is computed
   a) Income before income taxes less Interest Expense divided by Interest Expense.
   b) Income before income taxes divided by Interest Expense.
   c) Income before income taxes plus Interest Expense divided by Interest Revenue.
   d) Income before income taxes plus Interest Expense divided by Interest Expense.

2. One potential advantage of financing corporations through the use of bonds rather than common stock is:
   a) The interest on bonds must be paid when due
   b) The interest expense is deductible for tax purposes by the corporation.
   c) The corporation must pay the bonds at maturity.
   d) A higher earnings per share is guaranteed for existing common shareholders.

3. When the contract rate of interest on bonds is higher than the market rate of interest, the bonds sell at:
   a) their face value
   b) their maturity value
   c) a discount
   d) a premium

4. Sinking Fund Cash would be classified on the balance sheet as:
   a) a current asset
   b) a plant asset
   c) an investment
   d) an intangible asset

5. Bonds Payable has a balance of $2,000,000 and Discount on Bonds Payable has a balance of $15,000. If the issuing corporation redeems the bonds at 99, what is the amount of gain or loss on redemption?
   a) $20,000 loss
   b) $20,000 gain
   c) $5,000 gain
   d) $5,000 loss

6. On June 1, $1,000,000 of bonds were purchased as a long-term investment at 99 plus accrued interest and $1,000 was paid as the brokerage commission. If the bonds bear interest at 12%, which is paid semiannually on January 1 and July 1, what is the total cost to be debited to the investment account?
   a) $1,100,000
   b) $1,000,000
   c) $991,000
   d) $990,000

7. The balance in Discount on Bonds Payable:
   a) Should be reported on the balance sheet as an asset because it has a debit balance
   b) Would be subtracted from the related bonds payable on the balance sheet
   c) Would be added to the related bonds payable to determine the carrying amount of the bonds.
   d) Should be allocated to the remaining periods for the life of the bonds by the straight-line method, if the results obtained by that method materially differ from the results that would be obtained by the interest method.

8. The journal entry a company records for the payment of interest, interest expense, and amortization of bond discount is:
   a) debit Interest Expense, credit Cash
   b) debit Interest Expense and Discount on Bonds Payable, credit Cash
   c) debit Interest Expense, credit Interest Payable and Discount on Bonds Payable
   d) debit Interest Expense, credit Cash and Discount on Bonds Payable

9. The journal entry a company records for the payment of interest, interest expense, and amortization of bond premium is:
   a) debit Interest Expense, credit Cash
   b) debit Interest Expense and Premium on bonds Payable, credit Cash
   c) debit Interest Expense, credit Interest Payable and Premium on Bonds Payable
   d) debit Interest Expense, credit Cash and Premium on Bonds Payable

10. $100,000, 10-year, 9% Bonds that pay interest semiannually were issued when the market interest rate was 10%. The annual amortization of the Bond Discount using the straight-line method will be (Hint: First calculate the selling price of the bond):
    a) $450.00
    b) $498.49
    c) $500.00
    d) $621.30

11. When a bond is sold at a premium it is reported on the balance sheet at it's
    a) Face value
    b) Maturity value
    c) Carrying value
    d) Market value

12. Amortizing a bond discount
    a) Decreases bond interest expense.
    b) Increases the carrying value of the bond.
    c) Has no effect on the bond interest expense.
    d) Decreases the maturity value of the bond.

13. On January 1, 2001, $5,000,000, 10-year, 8% bonds were issued at $5,150,000. Interest is paid each semiannually. If the straight-line method is used to amortize the premium, the amortization for the first year is:
    a) $7,500
    b) $15,000
    c) $150,000
    d) $250,000

14. A 10%, 5-year, $100,000 bond that sells when the market rate of interest is 12% will sell at
    a) face value
    b) a premium
    c) a discount
    d) par

15. Bonds with a face value of $2,000,000 are sold at 97. The entry to record the issuance is
    a) Debit Cash $2,000,000; Credit Discount on Bonds Payable $60,000 and Bonds Payable $1,940,000
    b) Debit Cash $1,940,000; Credit Bonds Payable $1,940,000
    c) Debit Cash $2,060,000; Credit Discount on Bonds Payable $60,000 and Bonds Payable $2,000,000
    d) Debit Cash $1,940,000 and Discount on Bonds Payable $60,000; Credit Bonds Payable $2,000,000

16. A $500,000 bond liability is retired at 97 when the carrying value of the bond is $483,000. The entry to record the retirement would include a
    a) $2,000 loss
    b) $15,000 gain
    c) $15,000 loss
    d) $2,000 gain

17. Bonds with a face value of $800,000 and interest rate of 8% are issued at 105 on January 2, 2002. The bonds pay interest semiannually on January 1 and July 1 and mature in 5 years. What is the total interest expense in 2002?
    a) $32,000
    b) $56,000
    c) $64,000
    d) $72,000

18. Samson Enterprises issued a ten-year, $20 million bond with a 10% interest rate for $19,500,000. The entry to record the bond issuance would have what effect on the financial statements?
    a) Increase assets
    b) Increase liabilities
    c) Increase equity
    d) a) and b)

19. Samson Enterprises issued a ten-year, $20 million bond with a 10% interest rate for $19,500,000. The entry to record the bond retirement would have what effect on the financial statements?
    a) Increase assets
    b) Increase liabilities
    c) Increase equity
    d) a) and b)

20. Megginson, Inc. issued a five-year corporate bond of $300,000 with a 5% interest rate for $330,000. What effect would the bond issuance have on Megginson, Inc.'s accounting equation?
    a) Increase assets and liabilities
    b) Increase and decrease assets
    c) Increase assets and equity
    d) Increase and decrease liabilities

Solutions to Practice Problems

Practice Problem #1

a)

		Annuity Factor 4 periods at 12%	
$8,000 x		3.03735 =	$24,299

b)

		Present Value of $1 10 periods at 5%	
$400,000 x		.42241 =	$168,964
		Present Value of $1 10 periods at 9%	
$400,000 x		.61391 =	$245,564

c)

		Annuity Factor 20 periods at 9%	
$10,000 x		9.12855 =	$91,286
		Present Value of $1 20 periods at 9%	
$200,000 x		.17843 =	$35,686
			$126,972

Practice Problem #2

		Annuity Factor 14 periods at 6%	
$360,000 x		9.29498 =	$3,346,193
		Present Value of $1 14 periods at 6%	
$8,000,000 x		.44230 =	$3,538,400
			$6,884,593

Cash	6,884,593	
Discount on Bonds Payable	1,115,407	
Bonds Payable		8,000,000
Interest Expense	439,672	
Discount on Bonds Payable		79,672
Cash		360,000

Practice Problem #3

	Annuity Factor 14 periods at 4%		
$360,000 x	10.56312 =		$3,802,724
	Present Value of $1 14 periods at 4%		
$8,000,000 x	.57748 =		$4,619,804
			$8,422,528

Cash		8,422,528	
	Premium on Bonds Payable		422,528
	Bonds Payable		8,000,000
Interest Expense		329,819	
Premium on Bonds Payable		30,181	
	Cash		360,000

Practice Problem #4

2011			
July 1	Cash	18,110,780	
	Discount on Bonds Payable	1,89,220	
	Bonds Payable		20,000,000
Dec 31	Interest expense	1,200,000	
	Cash		1,200,000
	*(20,000,000 * .12 * ½ year)*		
Dec 31	Interest expense	118,076	
	Discount on Bonds Payable		118,076
	*(1,889,220/8 years * ½ year = 118,076)*		
Dec 31	Income summary	1,318,076	
	Interest expense		1,318,076

2012

Jun 30	Interest expense	1,200,000	
	Cash		1,200,000
	*(20,000,000 * .12 * ½ year)*		
Jun 30	Interest expense	118,076	
	Discount on Bonds Payable		118,076
	*(1,889,220/8 years * ½ year = 118,076)*		
July 1	Bonds payable	20,000,000	
	Discount on bonds payable		1,653,068
	Loss on redemption	653,068	
	Cash		19,000,000
	Balance in the discount account on the date of redemption is 1,889,220 - 118,076 - 118,076 = 1,653,068		
	*Redemption price: 20,000,000 * 95% = 19,000,000 cash paid*		
	Loss: 19,000,000 – 18,346,932 = 653,068		

Practice Problem #5

2008

9/2	Cash	5,529,704	
	Premium on Bonds Payable		529,704
	Bonds Payable		5,000,000
12/31	Interest Expense	250,000	
	Interest Payable		250,000
	Premium on Bonds Payable	17,657	
	Interest Expense		17,657
	Income Summary	232,343	
	Interest Expense		232,343

2009

3/1	Interest Expense	125,000	
	Interest Payable	250,000	
	Cash		375,000
	Premium on Bonds Payable	8,828	
	Interest Expense		8,828
9/1	Interest Expense	375,000	
	Cash		375,000
	Premium on Bonds Payable	26,485	
	Interest Expense		26,485
12/31	Interest Expense	250,000	
	Interest Payable		250,000
	Premium on Bonds Payable	17,657	
	Interest Expense		17,657
12/31	Income Summary	697,030	
	Interest Expense		697,030

2010

2/2	Bonds Payable	5,000,000	
	Premium on Bonds Payable	454,663	
	Cash		5,400,000
	Gain on Redemption		54,663

Practice Problem #6

2012

1/1	Cash		30,000	
		Notes Payable		30,000

2013

1/1	Interest Expense		1,800.00	
		Notes Payable	6,857.74	
		Cash		8,657.74

30,000 x 6% = 1,800

2014

1/1	Interest Expense		1,388.53	
		Notes Payable	7,269.21	
		Cash		8,657.74

(30,000 – 6,857.74) x 6% = 1,388.53

Annuity Factor
4 periods at 6%

$30,000 / 3.46511 = $8,657.74

Note Payable Balance on January 1	*Interest Expense*	*Annual Payment*	*Principal Payment*	*Note Payable Balance on December 31*
30,000.00	*1,800.00*	*8,657.74*	*6,857.74*	*23,142.26*
23,142.26	*1,388.54*	*8,657.74*	*7,269.21*	*15,873.05*
15,873.05	*952.38*	*8,657.74*	*7,705.36*	*8,167.68*
8,167.68	*490.06*	*8,657.74*	*8,167.68*	*-*

Solutions to True / False Questions

1. True
2. True
3. False - Secured bonds are supported by specific assets the issuer has pledged as collateral.
4. True
5. True
6. True
7. False - Market rates change continuously. Announcements by the Federal Reserve regarding its intentions to increase the federal funds rate, political unrest, an increase in the price of oil, and fears of growing inflation can all cause an increase in market interest rates.
8. True
9. True
10. True
11. False - When bonds are issued at a premium (above face amount), the carrying value and the corresponding interest expense *decrease* over time.
12. True
13. True
14. True
15. False - Losses/gains on the early extinguishment of debt are reported as non-operating items in the income statement.
16. True
17. False - No gain or loss is recorded on bonds retired at maturity, as the carrying value at maturity is equal to the face amount of the bond.
18. True
19. False – Dividends are not tax deductible.
20. False – A gain or loss is recorded only when the carrying value does not equal the cash paid at redemption.

Solutions to Multiple Choice Questions

1. D
2. B
3. D
4. C
5. C
6. C
7. B
8. D
9. B
10. D
11. C
12. B
13. B
14. C
15. D
16. A
17. B
18. D
19. D
20. A