

Bonds

Key Topics to Know

Bonds

- Characteristics of a bond
 - Generally pay interest twice a year
 - Have a term of at least one year
 - Specific terms for each bond are spelled out in the bond indenture
- Various types of bonds
 - Secured
 - Unsecured
 - Debentures
 - Callable
 - Serial
 - Term

Issuing Bonds

- 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.
- The price that a buyer is willing to pay for a bond is computed using present value based on the market rate of interest.
- The price of a bond is also stated as a percent of face value without the % sign. For example, if a \$1,000 bond is sold for \$1,030, the price is $\$1,030 / \$1,000 = 103\%$ or a price of 103.

Rules for Discount and Premium

- Discount:
 - Bond interest rate less than market/effective interest rate
 - Cash proceeds less than face amount of bonds
 - Price of the bond less than 100
 - Annual interest expense will be greater than cash interest payments due to the amortization of the discount
 - Carrying value will be less than face amount during term of the bonds
 - Discount account always has a debit balance
- Premium:
 - Bond interest rate greater than market/effective interest rate
 - Cash proceeds greater than face amount of bonds

- Price of the bond greater than 100
- Annual interest expense will be less than cash interest payments due to the amortization of the discount
- Carrying value will be greater than face amount during term of the bonds
- Premium account always has a credit balance

Amortization of Premium or Discount

- Amortization of a premium results in interest expense less than interest paid
- Amortization of a discount results in interest expense greater than interest paid
- Straight-line method
 - Computed in the same manner as straight-line depreciation
 - $\frac{\text{Discount or premium}}{\text{Number of periods}} = \text{amortization amount}$
- Effective-interest method
 - Computes interest expense as effective interest rate x carrying value of bond
 - Amortization amount is the difference between interest expense and interest paid

Interest Expense

- Calculate the interest payment based on the bond or stated interest rate
- Calculate the amortization of a bond discount or premium and journalize the amortization either annually or semi-annually.
- $\text{Interest expense} = \text{interest paid} + \text{amortization of the discount or interest paid} - \text{amortization of the premium}$

Retirements or Redemptions

- Bonds may be retired either in whole or in part.
- Recording the retirement is a four-step process:
 - Debit bonds payable for the face amount of bonds being retired
 - Debit bond premium or credit bond discount for the proportionate amount of premium or discount related to the bonds retired
 - Credit cash for amount paid (face amount x retirement price)
 - Credit gain on retirement or debit loss on retirement to balance

Problems

Problem #1 - Entries for issuing bonds and amortizing the discount by the straight-line method

On January 1, the S Company issued \$10,000,000 of five-year, 10% bonds to finance its operations. Interest is payable semiannually. The bond was issued when the effective interest rate was 12% resulting in the company receiving cash of \$9,264,050.

Journalize the entries to record the following:

- Required:
- a) Sale of the bonds
 - b) First semiannual interest payment (amortization is to be recorded annually)
 - c) Second semiannual interest payment
 - d) Amortization of discount at the end of the first year using the straight-line method
 - a) Determine the amount of bond interest expense for the first year.
 - b) Amortization of discount at the end of the first year using the effective-interest method
 - c) Determine the amount of bond interest expense for the first year.

Problem #2 - Entries for issuing bonds and amortizing the premium by the straight-line method

On January 1, the R Company issued \$10,000,000 of five-year, 10% bonds to finance its operations. Interest is payable semiannually. The bond was issued when the effective interest rate was 8% resulting in the company receiving cash of \$10,811,090.

Journalize the entries to record the following:

- Required:
- a) Sale of the bonds
 - b) First semiannual interest payment (amortization is to be recorded annually)
 - c) Second semiannual interest payment
 - d) Amortization of premium at the end of the first year using the straight-line method
 - e) Determine the amount of bond interest expense for the first year.
 - f) Amortization of premium at the end of the first year using the effective-interest method
 - g) Determine the amount of bond interest expense for the first year.

Problem #3 - Entry for calling bonds; loss

G Company issued \$10,000,000 of 10 year, 10% bonds on January 1 of this year. The bonds will be callable after 5 years on January 1. The bonds were issued for cash at their face amount.

Required: Journalize the entry to record the call of the bonds at 101.

Problem #4 - Entry for retiring bonds at a gain

G Company issued \$8,000,000 of 12 year, 8% bonds on January 1 of this year. G Company's business was very successful and it was able to retire half the bonds after 3 years on January 1. The bonds were issued for cash at their face amount.

Required: Journalize the entry to record the retirement of the half of the bonds at 95.

Multiple Choice Questions

1. When bonds mature, a corporation will pay the bondholders
 - a) the current market value of the bonds.
 - b) the face amount plus the original premium or minus the original discount.
 - c) the face amount plus the interest accrued since the date the bonds were issued.
 - d) the face amount of the bonds.

2. On December 31, L Company issued \$200,000 face value, 12 percent bonds that mature 10 years from the date of issue. The issue price was 97. If the firm uses the straight-line method of amortization, interest expense for the next year will be reported at
 - a) \$24,600
 - b) \$24,000
 - c) \$23,400
 - d) \$19,400

3. Bonds with a face value of \$200,000 were issued at 103. The entry to record the issuance will include a credit to the Bonds Payable account for
 - a) \$206,000
 - b) \$200,000
 - c) \$103,000
 - d) \$230,000.

4. The entry to record the adjustment for accrued bond interest includes
 - a) a debit to Bond Interest Expense and a credit to Cash.
 - b) a debit to Bond Interest Expense and a credit to Bond Interest Payable.
 - c) a debit to Bond Interest Payable and a credit to the Bond Interest Expense.
 - d) a debit to Bond Interest Expense and a credit to Bonds Payable.

5. The entry to record the issuance of bonds at face value includes
 - a) a credit to Bond Interest Payable.
 - b) a credit to Bond Payable.
 - c) a debit to Bond Interest Expense.
 - d) a debit to Bond Interest Payable.

6. The amortization of the bond discount _____ the carrying value of the bond, while the amortization of the bond premium _____ the carrying value of the bond.
- decreases, increases
 - increases, decreases
 - increases, increases
 - decreases, decreases
7. Bonds issued at a premium are
- traded for stock
 - sold at face value
 - sold at less than face value
 - sold for more than face value
8. The carrying value of bonds at maturity always equals:
- the amount of cash originally received in exchange for the bonds.
 - the par value of the bond.
 - the amount of discount or premium.
 - the amount of cash originally received in exchange for the bonds plus any unamortized discount or less any premium.
9. An advantage of bonds is:
- Bonds do not affect owner control.
 - Bonds require payment of par value at maturity.
 - Bonds can decrease return on equity.
 - Bond payments can be burdensome when income and cash flow are low.
10. Which of the following accurately describes a debenture?
- A bond with specific assets pledged as collateral.
 - A type of bond which is not collateralized but backed only by the issuer's general credit standing.
 - A type of bond which requires the bond issuer to create a sinking fund of assets set aside at specified amounts and dates to repay the bonds.
 - A type of bond that can be exchanged for a fixed number of shares of the issuing corporation's common stock.

11. Morgan Company issues 9%, 20-year bonds with a par value of \$750,000 that pay interest semi-annually. The current market rate is 8%. The amount of interest owed to the bondholders for each semiannual interest payment is:
 - a) \$60,000
 - b) \$33,750
 - c) \$67,500
 - d) \$30,000

12. A company issued 10-year, 7% bonds with a par value of \$100,000. The company received \$96,526 for the bonds. Using the straight-line method, the amount of interest expense for the first semiannual interest period is:
 - a) \$3,326
 - b) \$3,674
 - c) \$3,500
 - d) \$7,000

13. A five-year, \$500,000 bond was issued on January 1, 2016. The stated rate of interest was 8%, and the effective rate of interest was 10%. The interest is paid semiannually. Which of the following statements is correct?
 - a) This bond was issued at a premium, and each semiannual cash payment is \$25,000.
 - b) This bond was issued at a discount, and each semiannual cash payment is \$20,000.
 - c) This bond was issued at a discount, and the annual interest expense is \$40,000.
 - d) This bond was issued at a premium, and the annual interest expense is \$40,000.

14. All of the following statements are false except:
 - a) The effective interest method of bond premium amortization matches interest expense with the declining carrying value of the bond.
 - b) The carrying value of a bond issued at a premium will decrease by smaller and smaller amounts each year.
 - c) Interest expense is calculated by multiplying the beginning carrying value of the bond by the stated rate of interest.
 - d) Effective interest amortization can only be used on bonds that pay interest annually.

15. The effective interest rate method of amortizing bond premium or discount results in a
- a) Constant amount of interest expense every period
 - b) Constant amount of decrease in the unamortized premium every period
 - c) Amortization of the premium equal to the outstanding amount of bonds payable times the bond interest rate
 - d) Amortization of the bond premium equal to the difference between the interest paid and the effective interest expense

Solutions to Problems

Problem #1 - Entries for issuing bonds and amortizing the discount

a) Cash	9,264,050	
Discount on bonds payable	735,950	
Bonds payable		10,000,000
b) Interest expense	500,000	
Cash		500,000
c) Interest expense	500,000	
Cash		500,000

Straight-line method:

d) Interest expense	147,190	
Discount on bonds payable		147,190
<i>(735,950/5 years = 147,190)</i>		

e) Bond Interest Expense: $500,000 + 500,000 + 147,190 = 1,147,190$

Effective-interest method:

f) Interest expense	115,037	
Discount on bonds payable		115,037
<i>(55,843 + 59,194 = 115,037)</i>		

g) Bond Interest Expense: $555,843 + 559,194 = 1,115,037$

Interest expense for 1st payment:

$\$9,264,050 * 6\% =$	\$555,843	
Interest paid for 1 st payment:	<u>500,000</u>	
Amortization of discount		55,843

Interest expense for 2nd payment:

$(\$9,264,050 + 55,843) * 6\% =$	\$559,194	
Interest paid for 2 nd payment:	<u>500,000</u>	
Amortization of discount		59,194

Problem #2 - Entries for issuing bonds and amortizing the premium

a)	Cash	10,811,090	
	Premium on bonds payable		811,090
	Bonds payable		10,000,000
b)	Interest expense	500,000	
	Cash		500,000
c)	Interest expense	500,000	
	Cash		500,000
d)	Premium on bonds payable	162,218	
	Interest expense		162,218
	<i>(811,090/5 periods = 162,218)</i>		
e)	Bond Interest Expense: $500,000 + 500,000 - 162,218 = 837,782$		
f)	Premium on bonds payable	137,815	
	Interest expense		137,815
	<i>(67,556 + 70,259)</i>		
g)	Bond Interest Expense: $432,444 + 429,741 = 862,185$		

Interest expense for 1st payment:

$$\$10,811,090 * 4\% = \underline{\$432,444}$$

Interest paid for 1st payment:

$$\underline{500,000}$$

Amortization of premium

$$67,556$$

Interest expense for 2nd payment:

$$(\$10,811,090 - 67,556) * 4\% = \underline{\$429,741}$$

Interest paid for 2nd payment:

$$\underline{500,000}$$

Amortization of discount

$$70,259$$

Problem #3 - Entry for calling bonds; loss

Bonds Payable	10,000,000	
Loss on Redemption	100,000	
Cash		10,100,000

Problem #4 - Entry for retiring bonds at a gain

Bonds Payable	4,000,000	
Gain on Retirement		200,000
Cash		3,800,000

Solutions to Multiple Choice Questions

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|-----|---|
| 1. | D |
| 2. | A |
| 3. | B |
| 4. | B |
| 5. | B |
| 6. | B |
| 7. | D |
| 8. | B |
| 9. | A |
| 10. | B |
| 11. | B |
| 12. | B |
| 13. | B |
| 14. | A |
| 15. | D |