

# CHAPTER 16

## Dilutive Securities and Earnings Per Share

### ASSIGNMENT CLASSIFICATION TABLE

Topics	Questions	Brief Exercises	Exercises	Problems	Cases
1. Convertible debt and preferred stock.	1, 2, 3, 4, 5, 6, 7	1, 2, 3	1, 2, 3, 4, 5, 6, 7, 8, 24, 25	2	1
2. Warrants and debt.	2, 3, 8, 9	4, 5	2, 7, 8, 9, 28	1	1, 3
3. Stock options.	1, 10, 11, 12, 13, 14	6, 7	10, 11, 12, 13, 14	1, 3, 4	2, 4, 5
4. Earnings Per Share (EPS)—terminology.	17, 22, 23, 25	14			7
5. EPS—Determining potentially dilutive securities.	17, 18, 19, 20	11, 12, 13	22, 23, 27	4	6, 8
6. EPS—Treasury stock method.	21		26	5	6, 8
7. EPS—Weighted average computation.	15, 16	9, 10	15, 16, 17, 18, 21	4, 5, 6, 7, 8, 9	
8. EPS—General objectives.	24	8, 14			6, 7, 8
9. EPS—Comprehensive calculations.			19, 20, 21, 22, 23, 24, 25, 26, 28	6, 7, 8	
10. EPS—Contingent shares.			27		
*11. Stock appreciation rights.		15	13, 14		4

\*This material is dealt with in an Appendix to the chapter.

## ASSIGNMENT CHARACTERISTICS TABLE

Item	Description	Level of Difficulty	Time (minutes)
E16-1	Issuance and conversion of bonds.	Simple	15-20
E16-2	Conversion of bonds.	Simple	15-20
E16-3	Conversion of bonds.	Simple	10-20
E16-4	Conversion of bonds.	Moderate	15-20
E16-5	Conversion of bonds.	Simple	10-20
E16-6	Conversion of bonds.	Moderate	25-35
E16-7	Issuance of bonds with warrants.	Simple	10-15
E16-8	Issuance of bonds with detachable warrants.	Simple	10-15
E16-9	Issuance of bonds with warrants.	Moderate	15-20
E16-10	Issuance and exercise of stock options.	Moderate	15-25
E16-11	Issuance, exercise, and termination of stock options.	Moderate	15-25
E16-12	Issuance, exercise, and termination of stock options.	Moderate	20-30
*E16-13	Stock appreciation rights.	Moderate	15-25
*E16-14	Stock appreciation rights.	Moderate	15-25
E16-15	Weighted average number of shares.	Moderate	15-25
E16-16	EPS: Simple capital structure.	Simple	10-15
E16-17	EPS: Simple capital structure.	Simple	12-15
E16-18	EPS: Simple capital structure.	Simple	10-15
E16-19	EPS: Simple capital structure.	Simple	20-25
E16-20	EPS: Simple capital structure.	Simple	25-30
E16-21	EPS: Simple capital structure.	Simple	10-15
E16-22	EPS with convertible bonds, various situations.	Complex	20-25
E16-23	EPS with convertible bonds.	Moderate	15-20
E16-24	EPS with convertible bonds and preferred stock.	Moderate	20-25
E16-25	EPS with convertible bonds and preferred stock.	Moderate	10-15
E16-26	EPS with options, various situations.	Moderate	20-25
E16-27	EPS with contingent issuance agreement.	Simple	10-15
E16-28	EPS with warrants.	Moderate	15-20
P16-1	Entries for various dilutive securities.	Moderate	35-40
P16-2	Entries for conversion, amortization, and interest of bonds.	Moderate	45-50
P16-3	Stock option plan.	Moderate	30-35
P16-4	EPS with complex capital structure.	Moderate	40-45
P16-5	Basic EPS: Two-year presentation.	Moderate	30-35
P16-6	EPS computation of basic and diluted EPS.	Moderate	35-45
P16-7	Computation of basic and diluted EPS.	Moderate	25-35
P16-8	EPS with stock dividend and extraordinary item.	Complex	30-40
C16-1	Warrants issued with bonds and convertible bonds.	Moderate	20-25
C16-2	Ethical issues—compensation plan.	Simple	15-20
C16-3	Stock warrants—various types.	Moderate	15-20
*C16-4	Stock options and stock appreciation rights—intrinsic value model.	Moderate	25-30
C16-5	Stock compensation plans.	Moderate	25-30
C16-6	EPS: Preferred dividends, options, and convertible debt.	Moderate	25-30
C16-7	EPS concepts and effect of transactions on EPS.	Moderate	25-35
C16-8	Concepts related to options and antidilution.	Moderate	25-35

# ANSWERS TO QUESTIONS

1. Securities such as convertible debt or stock options are dilutive because their features indicate that the holders of the securities can become common shareholders. When the common shares are issued, there will be a reduction—dilution—in earnings per share.
2. Corporations issue convertible securities for two reasons. One is to raise equity capital without giving up more ownership control than necessary. A second reason is to obtain common stock financing at cheaper rates. The conversion privilege attracts investors willing to accept a lower interest rate than on a straight debt issue.
3. Convertible debt and debt with stock warrants are similar in that: (1) both allow the issuer to issue debt at a lower interest cost than would generally be available for nonconvertible debt; (2) both allow the holders to purchase the issuer's stock at less than market value if the stock appreciates sufficiently in the future; (3) both provide the holder the protection of a debt security if the value of the stock does not appreciate; and (4) both are complex securities which contain elements of debt and equity at the time of issue.

Convertible debt and debt with stock warrants are different in that: (1) if the market price of the stock increases sufficiently, the issuer can force conversion of convertible debt into common stock by calling the issue for redemption, but the issuer cannot force exercise of the warrants; (2) convertible debt may be essentially equity capital, whereas debt with stock warrants is debt with the additional right to acquire equity; and (3) the conversion option and the convertible debt are inseparable and, in the absence of separate transferability, do not have separate values established in the market; whereas debt with detachable stock warrants can be separated into debt and the right to purchase stock, each having separate values established by the transactions in the market.

4. The accounting treatment of the \$160,000 "sweetener" to induce conversion of the bonds into common shares represents a departure from GAAP because the FASB views the transaction as the retirement of debt. Therefore, the FASB requires that the "sweetener" of \$160,000 be reported as an expense. It is not an extraordinary loss because it is simply a payment to induce conversion.
5. (a) From the point of view of the issuer, the conversion feature of convertible debt results in a lower cash interest cost than in the case of nonconvertible debt. In addition, the issuer in planning its long-range financing may view the convertible debt as a means of raising equity capital over the long term. Thus, if the market value of the underlying common stock increases sufficiently after the issue of the debt, the issuer will usually be able to force conversion of the convertible debt into common stock by calling the issue for redemption. Under the market conditions, the issuer can effectively eliminate the debt. On the other hand, if the market value of the common stock does not increase sufficiently to result in the conversion of the debt, the issuer will have received the benefit of the cash proceeds to the scheduled maturity dates at a relatively low cash interest cost.  
  
(b) The purchaser obtains an option to receive either the face amount of the debt upon maturity or the specified number of common shares upon conversion. If the market value of the underlying common stock increases above the conversion price, the purchaser (either through conversion or through holding the convertible debt containing the conversion option) receives the benefits of appreciation. On the other hand, should the value of the underlying company stock not increase, the purchaser could nevertheless expect to receive the principal and (lower) interest.

**Questions Chapter 16 (Continued)**

6. The view that separate accounting recognition should be accorded the conversion feature of convertible debt is based on the premise that there is an economic value inherent in the conversion feature or call on the common stock and that the value of this feature should be recognized for accounting purposes by the issuer. It may be argued that the call is not significantly different in nature from the call contained in an option or warrant and its issue is thus a type of capital transaction. The fact that the conversion feature coexists with certain senior security characteristics in a complex security and cannot be physically separated from these elements or from the instrument does not constitute a logical or compelling reason why the values of the various elements should not receive separate accounting recognition. The fact that the eventual outcome of the option granted the purchaser of the convertible debt cannot be determined at date of issuance is not relevant to the question of effectively reflecting in the accounting records the various elements of the complex document at the date of issuance. The conversion feature has a value at date of issuance and should be recognized. Moreover, the difficulties of implementation are not insurmountable and should not be relied upon to govern the conclusion.
  
7. The method used by the company to record the exchange of convertible debentures for common stock can be supported on the grounds that when the company issued the convertible debentures, the proceeds could represent consideration received for the stock. Therefore, when conversion occurs, the book value of the obligation is simply transferred to the stock exchanged for it. Further justification is that conversion represents a transaction with stockholders which should not give rise to a gain or loss.

On the other hand, recording the issue of the common stock at the book value of the debentures is open to question. It may be argued that the exchange of the stock for the debentures completes the transaction cycle for the debentures and begins a new cycle for the stock. The consideration or value used for this new transaction cycle should then be the amount which would be received if the debentures were sold rather than exchanged, or the amount which would be received if the related stock were sold, whichever is more clearly determinable at the time of the exchange. This method recognizes changes in values which have occurred and subordinates a consideration determined at the time the debentures were issued.

8.	Cash .....	3,000,000	
	Discount on Bonds Payable.....	200,000	
	Bonds Payable .....		3,000,000
	Paid-in Capital—Stock Warrants .....		200,000
	Value of bonds with warrants	\$3,000,000	
	Value of warrants	<u>200,000</u>	
	Value of bonds without warrants	<u>\$2,800,000</u>	

In this case, the incremental method is used since no separate value is given for the bonds without the warrants.

9. If a corporation decides to issue new shares of stock, the old stockholders generally have the right, referred to as a stock right, to purchase newly issued shares in proportion to their holdings. No entry is required when rights are issued to existing stockholders. Only a memorandum entry is needed to indicate that the rights have been issued. If exercised, the corporation simply debits Cash for the proceeds received, credits Common Stock for the par value, and any difference is recorded with a credit to Paid-in Capital in Excess of Par.
  
10. Under SFAS No. 123, companies are encouraged but are not required to use the fair value method to recognize compensation cost. If the fair value method is not adopted, companies are required to disclose in a note to the financial statements pro forma net income and earnings per share (if presented), as if they had used the fair value method.

**Questions Chapter 16 (Continued)**

11. This plan would not be considered compensatory since it meets the conditions of a noncompensatory plan; i.e., (1) all full-time employees may participate on an equitable basis, (2) the discount from market price is small, and (3) the plan offers no substantive option feature.

12. The profession recommends that the fair value of a stock option be determined on the date on which the option is granted to a specific individual.

At the date the option is granted, the corporation foregoes the alternative of selling the shares at the then prevailing price. The market price on the date of grant may be presumed to be the value which the employer had in mind. It is the value of the option at the date of grant, rather than the grantor's ultimate gain or loss on the transaction, which for accounting purposes constitutes whatever compensation the grantor intends to pay.

13. Statement of Financial Accounting Standards No.123 requires that compensation expense be recognized over the service period. Unless otherwise specified, the service period is the vesting period—the time between the grant date and the vesting date.

14. Using the fair value approach, total compensation expense is computed based on the fair value of the options on the date the options are granted to the employees. Fair value is estimated using an acceptable option pricing model (such as the Black-Scholes option pricing model).

15. Weighted average shares outstanding

Outstanding shares (all year) = .....	400,000
October 1 to December 31 (200,000 X 1/4) = .....	<u>50,000</u>
Weighted average .....	<u>450,000</u>
Earnings.....	\$3,000,000
Preferred dividends .....	<u>400,000</u>
Earnings available to common stockholders.....	<u><u>\$2,600,000</u></u>

$$\text{Earnings per share} = \frac{\$2,600,000}{450,000} = \$5.78$$

16. The computation of the weighted average number of shares requires restatement of the shares outstanding before the stock dividend or split. The additional shares outstanding as a result of a stock dividend or split are assumed to have been outstanding since the beginning of the year. Shares outstanding prior to the stock dividend or split are adjusted so that these shares are stated on the same basis as shares issued after the stock dividend/split.

17. (a) Basic earnings per share is the amount of earnings for the period available to each share of common stock outstanding during the reporting period.

(b) A potentially dilutive security is a security which can be exchanged for or converted into common stock and therefore upon conversion or exercise could dilute (or decrease) earnings per share. Included in this category are convertible securities, options, warrants, and other rights.

(c) Diluted earnings per share is the amount of earnings for the period available to each share of common stock outstanding and to each share that would have been outstanding assuming the issuance of common shares for all dilutive potential common shares outstanding during the reporting period.

(d) A complex capital structure exists whenever a company's capital structure includes dilutive securities.

(e) Potential common stock is not common stock in form but does enable its holders to obtain common stock upon exercise or conversion.

**Questions Chapter 16 (Continued)**

- 18. Convertible securities are potentially dilutive securities and part of diluted earnings per share if their conversion increases the EPS numerator less than it increases the EPS denominator; i.e., the EPS with conversion is less than the basic EPS.
  
- 19. The concept that a security may be the equivalent of common stock has evolved to meet the reporting needs of investors in corporations that have issued certain types of convertible securities, options, and warrants. A potentially dilutive security is a security which is not, in form, common stock but which enables its holder to obtain common stock upon exercise or conversion. The holders of these securities can expect to participate in the appreciation of the value of the common stock resulting principally from the earnings and earnings potential of the issuing corporation. This participation is essentially the same as that of a common stockholder except that the security may carry a specified dividend yielding a return different from that received by a common stockholder. The attractiveness to investors of this type of security is often based principally upon this potential right to share in increases in the earnings potential of the issuing corporation rather than upon its fixed return or upon other senior security characteristics. In addition, the call characteristic of the stock options and warrants gives the investor potential control over a far greater number of shares per dollar of investment than if the investor owned the shares outright.
  
- 20. Convertible securities are considered to be potentially dilutive securities whenever their conversion causes a greater percentage increase in the EPS numerator than in the EPS denominator. If this situation does not result, conversion is not assumed and only basic EPS is reported.
  
- 21. Under the treasury stock method, diluted earnings per share should be determined as if outstanding options and warrants were exercised at the beginning of year (or date of issue if later) and the funds obtained thereby were used to purchase common stock at the average market price for the period. For example, if a corporation has 10,000 warrants outstanding exercisable at \$54, and the average market price of the common stock during the reported period is \$60, the \$540,000 which would be realized from exercise of warrants and issuance of 10,000 shares would be an amount sufficient to acquire 9,000 shares; thus, 1,000 shares would be added to the outstanding common shares in computing diluted earnings per share for the period. However, to avoid an incremental positive effect upon earnings per share, options and warrants should enter into the computation only when the average market price of the common stock exceeds the exercise price of the option or warrant.
  
- 22. Yes, if warrants or options are present, an increase in the market price of the common stock can increase the number of potentially dilutive common shares by decreasing the number of shares repurchasable. In addition, an increase in the market price of common stock can increase the compensation expense reported in a stock appreciation rights plan. This would decrease net income and, consequently, earnings per share.
  
- 23. Antidilution is an increase in earnings per share resulting from the assumption that convertible securities have been converted or that options and warrants have been exercised, or other shares have been issued upon the fulfillment of certain conditions. For example, an antidilutive condition would exist when the dividend or interest requirement (net of tax) of a convertible security exceeds the current EPS multiplied by the number of common shares issuable upon conversion of the security. This may be illustrated by assuming a company in the following situation:

Net income.....	\$ 10,000
Outstanding shares of common stock .....	20,000
6% Bonds payable (convertible into 5,000 shares of common stock).....	\$100,000
Tax rate .....	40%

Basic earnings per share = \$10,000/20,000 shares = \$50

**Questions Chapter 16 (Continued)**

Earnings per share assuming conversion of the bonds:

Net income .....	\$10,000
Bond interest (net of tax) = (1 - .40) (\$100,000 X .06) .....	<u>3,600</u>
Adjusted net income .....	<u>\$13,600</u>

$$\text{Earnings per share assuming conversion} = \frac{\$13,600}{20,000 + 5,000} = \underline{\underline{\$.54}}$$

This antidilutive effect occurs because the bond interest (net of tax) of \$3,600 is greater than the current EPS of \$.50 multiplied by the number of shares issuable upon conversion of the bonds (5,000 shares).

24. Both basic earnings per share and diluted earnings per share must be presented in a complex capital structure. When irregular items are reported, per share amounts should be shown for income from continuing operations, income before extraordinary items and accounting change, and net income.
- \*25. Antidilution when multiple securities are involved is determined by ranking the securities for maximum possible dilution in terms of per share effect. Starting with the most dilutive, earnings per share is reduced until one of the securities maintains or increases earnings per share. When an increase in earnings per share occurs, the security that causes the increase in earnings per share is excluded. The previous computation therefore provided the maximum dilution.

## SOLUTIONS TO BRIEF EXERCISES

### BRIEF EXERCISE 16-1

Cash .....	4,950,000	
Discount on Bonds Payable .....	50,000	
Bonds Payable .....		5,000,000

### BRIEF EXERCISE 16-2

Bonds Payable .....	1,000,000	
Discount on Bonds Payable .....		30,000
Common Stock (1,000 X 50 X \$10) .....		500,000
Paid-in Capital in Excess of Par .....		470,000

### BRIEF EXERCISE 16-3

Preferred Stock .....	50,000	
Paid-in Capital in Excess of Par—Preferred		
Stock (\$55 – \$50) X 1,000 .....	5,000	
Common Stock .....		20,000
Paid-in Capital in Excess of Par—		
Common Stock		
(\$55 X 1,000) – (2,000 X \$10) .....		35,000

### BRIEF EXERCISE 16-4

Cash .....	1,010,000	
Discount on Bonds Payable		
(\$1,000,000 – \$970,392) .....	29,608	
Bonds Payable .....		1,000,000
Paid-in Capital—Stock Warrants .....		39,608
FMV of bonds (1,000 X \$1,000 X .98)		\$ 980,000
FMV of warrants (1,000 X \$40)		<u>40,000</u>
Aggregate FMV		<u>\$1,020,000</u>
Allocated to bonds (\$980/\$1,020 X \$1,010,000)		\$ 970,392
Allocated to warrants (\$40/\$1,020 X \$1,010,000)		<u>39,608</u>
		<u>\$1,010,000</u>

**BRIEF EXERCISE 16-5**

Cash .....	1,010,000	
Discount on Bonds Payable		
[\$1,000,000 X (1 – .98)].....	20,000	
Bonds Payable .....		1,000,000
Paid-in Capital—Stock Warrants.....		30,000*

\*\$1,000,000 X (1.01 – .98)

**BRIEF EXERCISE 16-6**

1/1/05      No entry

12/31/05	Compensation Expense.....	37,500	
	Paid-in Capital—Stock		
	Options .....		37,500

12/31/05	Compensation Expense.....	37,500	
	Paid-in Capital—Stock		
	Options .....		37,500

[\$37,500 = (5,000 X \$15) X 1/2]

**BRIEF EXERCISE 16-7**

1/1/05      No entry

12/31/05	Compensation Expense.....	70,000	
	Paid-in Capital—Stock		
	Options .....		70,000

12/31/06	Compensation Expense.....	70,000	
	Paid-in Capital—Stock		
	Options .....		70,000

[\$70,000 = \$140,000 X 1/2]

### BRIEF EXERCISE 16-8

$$\frac{\$1,200,000 - (100,000 \times \$2)}{250,000 \text{ shares}} = \underline{\$4.00 \text{ per share}}$$

### BRIEF EXERCISE 16-9

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
1/1–5/1	120,000	4/12	40,000
5/1–7/1	165,000	2/12	27,500
7/1–10/1	155,000	3/12	38,750
10/1–12/31	165,000	3/12	<u>41,250</u>
			<u>147,500</u>

### BRIEF EXERCISE 16-10

(a)  $(200,000 \times 4/12) + (230,000 \times 8/12) = \underline{220,000}$

(b) 230,000 (The 30,000 shares issued in the stock dividend are assumed outstanding from the beginning of the year.)

### BRIEF EXERCISE 16-11

Net income	\$300,000
Adjustment for interest, net of tax [ $\$40,000 \times (1 - .40)$ ]	<u>24,000</u>
Adjusted net income	\$324,000
Weighted average number of shares adjusted for dilutive securities (100,000 + 16,000)	<u>÷ 116,000</u>
Diluted EPS	<u>\$2.79</u>

### BRIEF EXERCISE 16-12

Net income	\$400,000
Weighted average number of shares adjusted for dilutive securities (50,000 + 10,000)	<u>÷ 60,000</u>
Diluted EPS	<u>\$6.67</u>

### BRIEF EXERCISE 16-13

Proceeds from assumed exercise of 30,000 options (30,000 X \$10)	<u>\$300,000</u>
Shares issued upon exercise	<u>30,000</u>
Treasury shares purchasable (\$300,000 ÷ \$15)	<u>20,000</u>
Incremental shares	<u>10,000</u>

$$\text{Diluted EPS} = \frac{\$300,000}{200,000 + 10,000} = \underline{\underline{\$1.43}}$$

### BRIEF EXERCISE 16-14

Earnings per share	
Income before extraordinary loss (\$600,000/50,000)	\$12.00
Extraordinary loss (\$120,000/50,000)	<u>(2.40)</u>
Net income (\$480,000/50,000)	<u>\$ 9.60</u>

### \*BRIEF EXERCISE 16-15

$$2004: [5,000 \times (\$22 - \$20)] \times 50\% = \underline{\underline{\$5,000}}$$

$$2005: [5,000 \times (\$29 - \$20)] - \$5,000 = \underline{\underline{\$40,000}}$$

# SOLUTIONS TO EXERCISES

## EXERCISE 16-1 (15-20 minutes)

1.	Cash (\$20,000,000 X .99) .....	19,800,000	
	Discount on Bonds Payable .....	200,000	
	Bonds Payable .....		20,000,000
	Unamortized Bond Issue Costs .....	70,000	
	Cash .....		70,000
2.	Cash .....	19,600,000	
	Discount on Bonds Payable .....	1,200,000	
	Bonds Payable .....		20,000,000
	Paid-in Capital—Stock Warrants.....		800,000
	Value of bonds plus warrants (\$20,000,000 X .98) .....	\$19,600,000	
	Value of warrants (200,000 X \$4) .....	<u>800,000</u>	
	Value of bonds .....	<u>\$18,800,000</u>	
3.	Debt Conversion Expense .....	75,000	
	Bonds Payable .....	10,000,000	
	Discount on Bonds Payable .....		55,000
	Common Stock .....		1,000,000
	Paid-in Capital in Excess of Par.....		8,945,000*
	Cash .....		75,000

\*[(\$10,000,000 – \$55,000) – \$1,000,000]

## EXERCISE 16-2 (15-20 minutes)

(a)	Interest Payable (\$200,000 X 2/6) .....	66,667	
	Interest Expense (\$200,000 X 4/6) + \$2,712..	136,045	
	Discount on Bonds Payable .....		2,712
	Cash (\$4,000,000 X 10% ÷ 2).....		200,000

### Calculations:

Par value	\$4,000,000
Issuance price	<u>3,920,000</u>
Total discount	<u>\$ 80,000</u>

**EXERCISE 16-2 (Continued)**

Months remaining	118
Discount per month (\$80,000 ÷ 118)	\$678
Discount amortized (4 X \$678)	\$2,712

(b) Bonds Payable .....	1,500,000	
Discount on Bonds Payable .....		27,458
Common Stock (30,000 X \$20) .....		600,000
Paid-in Capital in Excess of Par.....		872,542*

\*(\$1,500,000 – \$27,458) – \$600,000

**Calculations:**

Discount related to 3/8 of the bonds (\$80,000 X 3/8)	\$30,000
Less discount amortized [( $\$30,000 \div 118$ ) X 10]	<u>2,542</u>
Unamortized bond discount	\$27,458

**EXERCISE 16-3 (10-20 minutes)**

**Conversion recorded at book value of the bonds:**

Bonds Payable .....	500,000	
Premium on Bonds Payable .....	7,500	
Preferred Stock (500 X 20 X \$50).....		500,000
Paid-in Capital in Excess of Par (Preferred Stock).....		7,500

**EXERCISE 16-4 (15-20 minutes)**

(a) Cash .....	10,800,000	
Bonds Payable .....		10,000,000
Premium on Bonds Payable.....		800,000
(To record issuance of \$10,000,000 of 8% convertible debentures for \$10,800,000. The bonds mature in twenty years, and each \$1,000 bond is convertible into five shares of \$30 par value common stock)		

**EXERCISE 16-4 (Continued)**

(b) Bonds Payable .....	3,000,000	
Premium on Bonds Payable (Schedule 1) .....	216,000	
Common Stock, \$15 par (Schedule 2) .....		450,000
Paid-in Capital in Excess of Par .....		2,766,000
(To record conversion of 30% of the outstanding 8% convertible debentures after giving effect to the 2-for-1 stock split)		

**Schedule 1**  
**Computation of Unamortized Premium on Bonds Converted**

Premium on bonds payable on January 1, 2003		\$800,000
Amortization for 2003 ( $\$800,000 \div 20$ )	\$40,000	
Amortization for 2004 ( $\$800,000 \div 20$ )	<u>+40,000</u>	<u>80,000</u>
Premium on bonds payable on January 1, 2005		720,000
Bonds converted		<u>30%</u>
Unamortized premium on bonds converted		<u>\$216,000</u>

**Schedule 2**  
**Computation of Common Stock Resulting from Conversion**

Number of shares convertible on January 1, 2003:		
Number of bonds ( $\$10,000,000 \div \$1,000$ )	10,000	
Number of shares for each bond	<u>X 5</u>	50,000
Stock split on January 1, 2004		<u>X 2</u>
Number of shares convertible after the stock split		100,000
% of bonds converted		<u>X 30%</u>
Number of shares issued		30,000
Par value/per share		<u>\$15</u>
Total par value		<u>\$450,000</u>

**EXERCISE 16-5 (10-20 minutes)**

Interest Expense .....	25,640	
Discount on Bonds Payable .....		640
[ $\$10,240 \div 64 = \$160$ ; $\$160 \times 4$ ]		
Cash ( $10\% \times \$500,000 \times 1/2$ ).....		25,000
(Assumed that the interest accrual was reversed as of January 1, 2005; if the interest accrual was not reversed, interest expense would be \$17,307 and interest payable would be debited for \$8,333)		
Bonds Payable .....	500,000	
Discount on Bonds Payable ( $\$10,240 - \$640$ ).....		9,600
Common Stock ( $\$25 \times 6 \times 500$ ) .....		75,000
Paid-in Capital in Excess of Par .....		415,400*

\* $(\$500,000 - \$9,600) - \$75,000$

**EXERCISE 16-6 (25-35 minutes)**

(a) December 31, 2005

Bond Interest Expense .....	156,000	
Premium on Bonds Payable .....	4,000	
( $\$80,000 \times 1/20$ )		
Cash ( $\$4,000,000 \times 8\% \times 6/12$ ).....		160,000

(b) January 1, 2006

Bonds Payable .....	400,000	
Premium on Bonds Payable .....	6,400	
Common Stock.....		320,000
[ $8 \times \$100 \times (\$400,000/\$1,000)$ ]		
Paid-in Capital in Excess of Par .....		86,400

Total premium	
( $\$4,000,000 \times .02$ )	\$80,000
Premium amortized	
( $\$80,000 \times 2/10$ )	16,000
Balance	<u>\$64,000</u>

Bonds converted	
( $\$400,000 \div \$4,000,000$ )	10%
Related premium	
( $\$64,000 \times 10\%$ )	6,400

**EXERCISE 16-6 (Continued)**

(c)	<b>March 31, 2006</b>		
	Bond Interest Expense.....	7,800	
	Premium on Bonds Payable .....	200	
	(\$6,400 ÷ 8 years) X 3/12		
	Bond Interest Payable .....		8,000
	(\$400,000 X 8% X 3/12)		

	<b>March 31, 2006</b>		
	Bonds Payable.....	400,000	
	Premium on Bonds Payable .....	6,200	
	Common Stock.....		320,000
	Paid-in Capital in Excess of Par .....		86,200

	Premium as of January 1, 2006	
	for \$400,000 of bonds	\$6,400
	\$6,400 ÷ 8 years remaining	
	X 3/12	<u>(200)</u>
	Premium as of March 31, 2006	
	for \$400,000 of bonds	<u>\$6,200</u>

(d)	<b>June 30, 2006</b>		
	Bond Interest Expense.....	124,800	
	Premium on Bonds Payable .....	3,200	
	Bond Interest Payable .....	8,000	
	(\$400,000 X 8% X 1/4)***		
	Cash .....		136,000*

[Premium to be amortized:  
(\$80,000 X 80%) X 1/20 = \$3,200, or  
\$51,200\*\* ÷ 16 (remaining interest and  
amortization periods) = \$3,200]

\*Total to be paid: (\$3,200,000 X 8% ÷ 2) + \$8,000 = \$136,000

**Original premium	\$80,000
2004 amortization	(8,000)
2005 amortization	(8,000)
Jan. 1, 2006 write-off	(6,400)
Mar. 31, 2006 amortization	(200)
Mar. 31, 2006 write-off	<u>(6,200)</u>
	<u>\$51,200</u>

\*\*\* Assumes interest accrued on March 31. If not, debit Bond Interest Expense for \$132,800.

**EXERCISE 16-7 (10-15 minutes)**

(a) **Basic formulas:**

$$\frac{\text{Value of bonds without warrants}}{\text{Value of bonds without warrants} + \text{Value of warrants}} \times \text{Issue price} = \text{Value assigned to bonds}$$

$$\frac{\text{Value of warrants}}{\text{Value of bonds without warrants} + \text{Value of warrants}} \times \text{Issue price} = \text{Value assigned to warrants}$$

$$\frac{\$136,000}{\$136,000 + \$24,000} \times \$152,000 = \$129,200 \quad \text{Value assigned to bonds}$$

$$\frac{\$24,000}{\$136,000 + \$24,000} \times \$152,000 = \frac{22,800}{\$152,000} \quad \text{Value assigned to warrants Total}$$

Cash .....	152,000	
Discount on Bonds Payable .....	40,800	
(\$170,000 – \$129,200)		
Bonds Payable .....		170,000
Paid-in Capital—Stock Warrants .....		22,800

(b) **When the warrants are non-detachable, separate recognition is not given to the warrants. The accounting treatment parallels that given convertible debt because the debt and equity element cannot be separated.**

**The entry if warrants were non-detachable is:**

Cash .....	152,000	
Discount on Bonds Payable .....	18,000	
Bonds Payable .....		170,000

**EXERCISE 16-8 (10-15 minutes)**

**SANDS COMPANY  
Journal Entry  
September 1, 2004**

Cash .....	4,220,000	
Unamortized Bond Issue Costs .....	30,000	
Bonds Payable (4,000 X \$1,000) .....		4,000,000
Premium on Bonds Payable—Schedule 1 .....		136,000
Paid-in Capital—Stock Warrants— Schedule 1 .....		24,000
Bond Interest Expense—Schedule 2 .....		90,000
(To record the issuance of the bonds)		

**Schedule 1  
Premium on Bonds Payable and Value of Stock Warrants**

Sales price (4,000 X \$1,040)	\$4,160,000
Face value of bonds	<u>4,000,000</u>
	160,000
Deduct value assigned to stock warrants (4,000 X 2 = 8,000; 8,000 X \$3)	<u>24,000</u>
Premium on bonds payable	<u>\$ 136,000</u>

**Schedule 2  
Accrued Bond Interest to Date of Sale**

Face value of bonds	\$4,000,000
Interest rate	<u>9%</u>
Annual interest	<u>\$ 360,000</u>
Accrued interest for 3 months – (\$360,000 X 3/12)	<u>\$ 90,000</u>

**EXERCISE 16-9 (10-15 minutes)**

(a) Cash (\$2,000,000 X 1.02) .....	2,040,000	
Discount on Bonds Payable .....	40,000	
[(1 – .98) X \$2,000,000]		
Bonds Payable .....		2,000,000
Paid-in Capital—Stock Warrants.....		80,000*

\*\$2,040,000 – (\$2,000,000 X .98)

**EXERCISE 16-9 (Continued)**

(b) Market value of bonds without warrants (\$2,000,000 X .98)	\$1,960,000
Market value of warrants (2,000 X \$30)	<u>60,000</u>
Total market value	<u>\$2,020,000</u>

$$\frac{\$1,960,000}{\$2,020,000} \times \$2,040,000 = \$1,979,406 \quad \text{Value assigned to bonds}$$

$$\frac{\$60,000}{\$2,020,000} \times \$2,040,000 = \$60,594 \quad \text{Value assigned to warrants}$$

Cash .....	2,040,000	
Discount on Bonds Payable .....	20,594	
Bonds Payable .....		2,000,000
Paid-in Capital—Stock Warrants.....		60,594

**EXERCISE 16-10 (15-25 minutes)**

1/2/05 No entry (total compensation cost is \$450,000)

12/31/05	Compensation Expense .....	225,000	
	Paid-in Capital—Stock Options.....		225,000
	[To record compensation expense for 2005 (1/2 X \$450,000)]		

12/31/06	Compensation Expense.....	225,000	
	Paid-in Capital—Stock Options .....		225,000
	[To record compensation expense for 2006 (1/2 X \$450,000)]		

1/3/07	Cash (20,000 X \$40) .....	800,000	
	Paid-in Capital—Stock Options .....	300,000	
	(\$450,000 X 20,000/30,000)		
	Common Stock (20,000 X \$10) .....		200,000
	Paid-in Capital in Excess of Par.....		900,000
	(To record issuance of 20,000 shares of \$10 par value stock upon exercise of options at option price of \$40)		

## EXERCISE 16-10 (Continued)

(Note to instructor: The market price of the stock has no relevance in the prior entry and the following one.)

5/1/07	Cash (10,000 X \$40).....	400,000	
	Paid-in Capital—Stock Options .....	150,000	
	(\$450,000 X 10,000/30,000)		
	Common Stock .....		100,000
	Paid-in Capital in Excess of Par.....		450,000
	(To record issuance of 10,000 shares of \$10 par value stock upon exercise of options at option price of \$40)		

## EXERCISE 16-11 (15-25 minutes)

1/1/05	No entry		
12/31/05	Compensation Expense.....	175,000	
	Paid-in Capital—Stock Options .....		175,000
	(\$350,000 X 1/2) (To recognize compensation expense for 2005)		
4/1/06	Paid-in Capital—Stock Options .....	35,000	
	Compensation Expense .....		35,000
	(\$350,000 X 2,000/20,000) (To record termination of stock op- tions held by resigned employees)		
12/31/06	Compensation Expense.....	175,000	
	Paid-in Capital—Stock Options .....		175,000
	(\$350,000 X 1/2) (To recognize compensation expense for 2006)		
3/31/07	Cash (12,000 X \$25).....	300,000	
	Paid-in Capital—Stock Options .....	210,000	
	(\$350,000 X 12,000/20,000)		
	Common Stock.....		120,000
	Paid-in Capital in Excess of Par .....		390,000
	(To record exercise of stock options)		

**EXERCISE 16-12 (15-25 minutes)**

<b>1/1/03</b>	<b>No entry</b>		
<b>12/31/03</b>	<b>Compensation Expense.....</b>	<b>200,000</b>	
	<b>    Paid-in Capital—Stock Options.....</b>		<b>200,000</b>
	<b>        (\$400,000 X 1/2)</b>		
<b>12/31/04</b>	<b>Compensation Expense.....</b>	<b>200,000</b>	
	<b>    Paid-in Capital—Stock Options.....</b>		<b>200,000</b>
<b>5/1/05</b>	<b>Cash (8,000 X \$20).....</b>	<b>160,000</b>	
	<b>    Paid-in Capital—Stock Options .....</b>	<b>320,000*</b>	
	<b>        Common Stock (8,000 X \$5) .....</b>		<b>40,000</b>
	<b>        Paid-in Capital in Excess of Par.....</b>		<b>440,000</b>
	<b>    *(\$400,000 X 8,000/10,000)</b>		
<b>1/1/07</b>	<b>Paid-in Capital—Stock Options .....</b>	<b>80,000</b>	
	<b>    Paid-in Capital from Expired Stock</b>		
	<b>        Options (\$400,000 – \$320,000).....</b>		
	<b>80,000</b>		

**\*EXERCISE 16-13 (15-25 minutes)**

**(a) Schedule of Compensation Expense Stock Appreciation Rights (150,000)**

Date	Market Price	Preestablished Price	Cumulative Compensation Recognizable	Percentage Accrued	Compensation Accrued to Date	Expense 2001	Expense 2002	Expense 2003	Expense 2004
12/31/01	\$14	\$10	\$ 600,000	25%	\$ 150,000	\$150,000			
12/31/02	8	10	0	50%	<u>(150,000)</u>		\$(150,000)		
12/31/03	20	10	1,500,000	75%	1,125,000		\$1,125,000		
12/31/04	19	10	1,350,000	100%	<u>225,000</u>				\$225,000
					<u>\$1,350,000</u>				

**(b) Compensation Expense** ..... **225,000**

**Liability Under Stock Appreciation Plan** ..... **225,000**

  

**(c) Liability Under Stock Appreciation Plan** ..... **1,350,000**

**Cash [150,000 X (\$19 – \$10)]** ..... **1,350,000**

**\*EXERCISE 16-14 (15-25 minutes)**

**(a) Schedule of Compensation Expense Stock Appreciation Rights (30,000)**

Date	Market Price	Preestablished Price	Cumulative Compensation Recognizable	Percentage Accrued	Compensation Accrued to Date	Expense 2002	Expense 2003	Expense 2004	Expense 2005	Expense 2006
12/31/02	\$36	\$30	\$180,000	25%	\$45,000	\$45,000				
12/31/03	39	30	270,000	50%	90,000		\$90,000			
12/31/04	45	30	450,000	75%	202,500			\$202,500		
12/31/05	36	30	180,000	100%	337,500				\$(157,500)	
12/31/06	48	30	540,000	—	(157,500)					\$360,000
					<u>360,000</u>					
					<u>\$540,000</u>					

**(b)**

<u>2002</u>	Compensation Expense.....	45,000
	Liability Under Stock Appreciation Plan .....	45,000
<u>2005</u>	Liability Under Stock Appreciation Plan .....	157,500
	Compensation Expense .....	157,500
<u>2006</u>	Compensation Expense.....	360,000
	Liability Under Stock Appreciation Plan .....	360,000

**EXERCISE 16-15 (15-25 minutes)**

<b>(a)</b>	<b>2,220,000 shares</b>	
	Jan. 1, 2003–Sept. 30, 2003 (2,000,000 X 9/12)	<b>1,500,000</b>
	Retroactive adjustment for stock dividend	<b>X 1.10</b>
	Jan. 1, 2003–Sept. 30, 2003, as adjusted	<b>1,650,000</b>
	Oct. 1, 2003–Dec. 31, 2003 (2,200,000 X 3/12)	<b>550,000</b>
		<b><u>2,200,000</u></b>

Another way to view this transaction is that the 2,000,000 shares at the beginning of the year must be restated for the stock dividend regardless of where in the year the stock dividend occurs.

<b>(b)</b>	<b>3,700,000 shares</b>	
	Jan. 1, 2004–Mar. 31, 2004 (2,200,000 X 3/12)	<b>550,000</b>
	Apr. 1, 2004–Dec. 31, 2004 (4,200,000 X 9/12)	<b>3,150,000</b>
		<b><u>3,700,000</u></b>

<b>(c)</b>	<b>7,400,000 shares</b>	
	2004 weighted average number of shares previously computed	<b>3,700,000</b>
	Retroactive adjustment for stock split	<b>X 2</b>
		<b><u>7,400,000</u></b>

<b>(d)</b>	<b>8,400,000 shares</b>	
	Jan. 1, 2005–Mar. 31, 2005 (4,200,000 X 3/12)	<b>1,050,000</b>
	Retroactive adjustment for stock split	<b>X 2</b>
	Jan. 1, 2005–Mar. 31, 2005, as adjusted	<b>2,100,000</b>
	Apr. 1, 2005–Dec. 31, 2005 (8,400,000 X 9/12)	<b>6,300,000</b>
		<b><u>8,400,000</u></b>

Another way to view this transaction is that the 4,200,000 shares at the beginning of the year must be restated for the stock split regardless of where in the year the stock split occurs.

## EXERCISE 16-16 (10-15 minutes)

(a)

Event	Dates Outstanding	Shares Outstanding	Restatement	Fraction of Year	Weighted Shares
Beginning balance	Jan. 1–Feb. 1	480,000	1.1 X 3.0	1/12	132,000
Issued shares	Feb. 1–Mar. 1	600,000	1.1 X 3.0	1/12	165,000
Stock dividend	Mar. 1–May 1	660,000	3.0	2/12	330,000
Reacquired shares	May 1–June 1	560,000	3.0	1/12	140,000
Stock split	June 1–Oct. 1	1,680,000		4/12	560,000
Reissued shares	Oct. 1–Dec. 31	1,740,000		3/12	<u>435,000</u>
Weighted average number of shares outstanding					1,762,000

(b) Earnings Per Share =  $\frac{\$3,456,000 \text{ (Net Income)}}{1,762,000 \text{ (Weighted Average Shares)}} = \$1.96$

(c) Earnings Per Share =  $\frac{\$3,456,000 - \$900,000}{1,762,000} = \$1.45$

(d) Income from continuing operations <sup>a</sup>	\$1.72
Loss from discontinued operations <sup>b</sup>	<u>(.25)</u>
Income before extraordinary item	1.47
Extraordinary gain <sup>c</sup>	<u>.49</u>
Net income	<u>\$1.96</u>

<sup>a</sup> Net income	\$3,456,000
Deduct extraordinary gain	(864,000)
Add loss from discontinued operations	<u>432,000</u>
Income from continuing operations	<u>\$3,024,000</u>

$\frac{\text{<sup>a</sup>\$3,024,000}}{1,762,000} = \$1.72$

$\frac{\text{<sup>b</sup>\$(432,000)}}{1,762,000} = \$(.25)$

$\frac{\text{<sup>c</sup>\$864,000}}{1,762,000} = \$.49$

**EXERCISE 16-17 (12-15 minutes)**

Event	Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Beginning balance	Jan. 1–May 1	200,000	4/12	66,667
Issued shares	May 1–Oct. 31	208,000	6/12	104,000
Reacquired shares	Oct. 31–Dec. 31	194,000	2/12	<u>32,333</u>
Weighted average number of shares outstanding				<u>203,000</u>

**Income per share before extraordinary item**

(\$249,690 + \$40,600 = \$290,290;

\$290,290 ÷ 203,000 shares)

**\$1.43**

**Extraordinary loss per share, net of tax**

(\$40,600 ÷ 203,000)

.20

**Net income per share (\$249,690 ÷ 203,000)**

**\$1.23**

**EXERCISE 16-18 (10-15 minutes)**

Event	Dates Outstanding	Shares Outstanding	Restatement	Fraction of Year	Weighted Shares
Beginning balance	Jan. 1–May 1	750,000	2	4/12	500,000
Issued shares	May 1–Aug. 1	1,050,000	2	3/12	525,000
Reacquired shares	Aug. 1–Dec. 31	900,000	2	5/12	<u>750,000</u>
Weighted average number of shares outstanding					<u>1,775,000</u>

**Net income**

**\$2,500,000**

**Preferred dividend (50,000 X \$100 X 8%)**

(400,000)

**\$2,100,000**

Net income applicable to common stock

= \$2,100,000 = \$1.18

Weighted average number of shares outstanding

1,775,000

**EXERCISE 16-19 (20-25 minutes)****Earnings per share of common stock:**

Income before extraordinary loss*	\$1.78
Extraordinary loss, net of tax**	<u>(.16)</u>
Net income***	<u>\$1.62</u>

**Income data:**

Income before extraordinary item	\$15,000,000
Deduct 6% dividend on preferred stock	<u>300,000</u>
Common stock income before extraordinary item	14,700,000
Deduct extraordinary loss, net of tax	<u>1,340,000</u>
Net income available for common stockholders	<u>\$13,360,000</u>

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
January 1–April 1	7,500,000	3/12	1,875,000
April 1–December 31	8,500,000	9/12	<u>6,375,000</u>
Weighted average number of shares outstanding			<u>8,250,000</u>

\*\$14,700,000 ÷ 8,250,000 shares = \$1.78 per share  
(income before extraordinary loss)

\*\*\$1,340,000 ÷ 8,250,000 shares = \$.16 per share  
(extraordinary loss net of tax)

\*\*\*\$13,360,000 ÷ 8,250,000 shares = \$1.62 per share  
(net income)

**EXERCISE 16-20 (10-15 minutes)**

Income before income tax and extraordinary items	\$300,000
Income taxes	<u>150,000</u>
Income before extraordinary item	150,000
Extraordinary gain, net of applicable income tax of \$45,000	<u>45,000</u>
Net income	<u>\$195,000</u>

**Per share of common stock:**

Income before extraordinary item*	\$.32
Extraordinary gain net of tax**	<u>.16</u>
Net income***	<u>\$.48</u>

**EXERCISE 16-20 (Continued)**

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
January 1–April 1	200,000	3/12	50,000
April 1–July 1	250,000	3/12	62,500
July 1–Oct. 1	330,000	3/12	82,500
Oct. 1–Dec 31.	360,000	3/12	<u>90,000</u>
Weighted average number of shares outstanding			<u><b>285,000</b></u>

**\$300,000 – income tax of \$150,000 – preferred dividends of \$60,000  
(6% of \$1,000,000) = \$90,000 (income available to common stockholders)**

**\*\$90,000 ÷ 285,000 shares = \$.32 per share (income before extraordinary gain)**

**\*\*\$45,000 ÷ 285,000 shares = \$.16 per share (extraordinary gain, net of tax)**

**\*\*\*\$135,000 ÷ 285,000 shares = \$.48 per share (net income)—(rounded up)**

**EXERCISE 16-21 (10-15 minutes)**

Event	Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Beginning balance	Jan. 1–April 1	900,000	3/12	225,000
Issued shares	April 1–Oct. 31	1,350,000	6/12	675,000
Reacquired shares	Oct. 31–Dec. 31	1,240,000	3/12	<u>310,000</u>
Weighted average number of shares outstanding— unadjusted				1,210,000
Stock dividend, 2/15/06				<u>1.05</u>
Weighted average number of shares outstanding— adjusted				<u><b>1,270,500</b></u>

Net income	\$2,530,000
Preferred dividend (280,000 X \$50 X 7%)	<u>(980,000)</u>
	<u><b>\$1,550,000</b></u>

**Earnings per share for 2005:**

$$\frac{\text{Net income applicable to common stock}}{\text{Weighted average number of common shares outstanding}} = \frac{\$1,550,000}{1,270,500} = \$1.22$$

**EXERCISE 16-22 (20-25 minutes)**

(a) Revenues		\$17,500
Expenses:		
Other than interest	\$8,400	
Bond interest (60 X \$1,000 X .08)	<u>4,800</u>	<u>13,200</u>
Income before income taxes		4,300
Income taxes (40%)		<u>1,720</u>
Net income		<u>\$ 2,580</u>

Diluted earnings per share:

$$\frac{\$2,580 + (1-.40)(\$4,800)}{2,000 + 6,000} = \frac{\$5,460}{8,000} = \underline{\underline{\$.68}}$$

(b) Revenues		\$17,500
Expenses:		
Other than interest	\$8,400	
Bond interest (60 X \$1,000 X .08 X 4/12)	<u>1,600</u>	<u>10,000</u>
Income before income taxes		7,500
Income taxes (40%)		<u>3,000</u>
Net income		<u>\$ 4,500</u>

Diluted earnings per share:

$$\frac{\$4,500 + (1-.40)(\$1,600)}{2,000 + (6,000 \times 1/3 \text{ yr.})} = \frac{\$5,460}{4,000} = \underline{\underline{\$1.37}}$$

(c) Revenues		\$17,500
Expenses:		
Other than interest	\$8,400	
Bond interest (60 X \$1,000 X .08 X 1/2)	2,400	
Bond interest (40 X \$1,000 X .08 X 1/2)	<u>1,600</u>	<u>12,400</u>
Income before income taxes		5,100
Income taxes (40%)		<u>2,040</u>
Net income		<u>\$ 3,060</u>

Diluted earnings per share (see note):

$$\frac{\$3,060 + (1-.40)(\$4,000)}{2,000 + (2,000 \times 1/2 \text{ yr.}) + 4,000 + (2,000 \times 1/2)} = \frac{\$5,460}{8,000} = \underline{\underline{\$.68}}$$

**Note:** The answer is the same as (a). In both (a) and (c), the bonds are assumed converted for the entire year.

**EXERCISE 16-23 (15-20 minutes)**

(a) (1) Number of shares for basic earnings per share.

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Jan. 1–April 1	800,000	3/12	200,000
April 1–Dec. 1	1,200,000	9/12	<u>900,000</u>
Weighted average number of shares outstanding			<u>1,100,000</u>

OR

Number of shares for basic earnings per share:

Initial issue of stock	800,000 shares
April 1, 2004 issue (3/4 X 400,000)	<u>300,000 shares</u>
Total	<u>1,100,000 shares</u>

(2) Number of shares for diluted earnings per share:

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Jan. 1–April 1	800,000	3/12	200,000
April 1–July 1	1,200,000	3/12	300,000
July 1–Dec. 31	1,224,000*	6/12	<u>612,000</u>
Weighted average number of shares outstanding			<u>1,112,000</u>

\*1,200,000 + [(\$600,000 ÷ 1,000) X 40]

(b) (1) Earnings for basic earnings per share:

After tax net income	<u>\$1,540,000</u>
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(2) Earnings for diluted earnings per share:

After tax net income		\$1,540,000
Add back interest on convertible bonds (net of tax):		
Interest (\$600,000 X .08 X 1/2)	\$24,000	
Less income taxes (40%)	<u>9,600</u>	14,400
Total		<u>\$1,554,400</u>

[Note to instructor: In this problem, the earnings per share computed for basic earnings per share is \$1.40 (\$1,540,000 ÷ 1,100,000) and the diluted earnings per share is \$1.40 (technically \$1.39784). As a result, only one earnings per share number would be presented.]

**EXERCISE 16-24 (20-25 minutes)**

(a) Net income for year	\$9,500,000
Add: Adjustment for interest (net of tax)	<u>234,000*</u>
	<b>\$9,734,000</b>

*Maturity value	\$5,000,000
Stated rate	X <u>7%</u>
Cash interest	350,000
Discount amortization [(1.00 – .98) X \$5,000,000 X 1/10]	<u>10,000</u>
Interest expense	360,000
1 – tax rate (35%)	X <u>.65</u>
After-tax interest	<u><b>\$ 234,000</b></u>

$\$5,000,000 / \$1,000 = 5,000$  debentures

Increase in diluted earnings per share denominator:

5,000
X <u>18</u>
<u><b>90,000</b></u>

Earnings per share:

Basic EPS	$\$9,500,000 \div 2,000,000 = \$4.75$
Diluted EPS	$\$9,734,000 \div 2,090,000 = \$4.66$

- (b) If the convertible security were preferred stock, basic EPS would be the same assuming there were no preferred dividends declared or the preferred was noncumulative. For diluted EPS, the numerator would be the net income amount and the denominator would be 2,090,000.

**EXERCISE 16-25 (10-15 minutes)**

(a) Net income	\$300,000
Add: Interest savings (net of tax)	
[\$120,000 X (1 – .40)]	<u>72,000</u>
Adjusted net income	<u><b>\$372,000</b></u>

$\$2,000,000 \div \$1,000 = 2,000$  bonds

X <u>15</u>
<b>30,000 shares</b>

Diluted EPS:  $\$372,000 \div (100,000 + 30,000) = \underline{\underline{\$2.86}}$

## EXERCISE 16-25 (Continued)

(b) Shares outstanding	100,000
Add: Shares assumed to be issued (10,000* X 5)	<u>50,000</u>
Shares outstanding adjusted for dilutive securities	<u>150,000</u>

$$*\$1,000,000 \div \$100$$

$$\text{Diluted EPS: } (\$300,000 - \$0) \div 150,000 = \underline{\underline{\$2.00}}$$

**Note:** Preferred dividends are not deducted since preferred stock was assumed converted into common stock.

## EXERCISE 16-26 (20-25 minutes)

(a)	<b>Diluted</b>
Shares assumed issued on exercise	1,000
Proceeds (1,000 X \$6 = \$6,000)	
Less: Treasury shares purchased (\$6,000/\$20)	<u>300</u>
Incremental shares	<u>700</u>

$$\text{Diluted EPS} = \frac{\$50,000}{10,000 + 700} = \$4.67 \text{ (rounded)}$$

(b)	<b>Diluted</b>
Shares assumed issued on exercise	1,000
Proceeds = \$6,000	
Less: Treasury shares purchased (\$6,000/\$20)	<u>300</u>
	700
	<u>X 3/12</u>
Incremental shares	<u>175</u>

$$\text{Diluted EPS} = \frac{\$50,000}{10,000 + 175} = \$4.91 \text{ (rounded)}$$

**EXERCISE 16-27 (10-15 minutes)**

- (a) The contingent shares would have to be reflected in diluted earnings per share because the earnings level is currently being attained.
- (b) Because the earnings level is not being currently attained, contingent shares are not included in the computation of diluted earnings per share.

**EXERCISE 16-28 (15-20 minutes)**

- (a) Diluted  
The warrants are dilutive because the option price (\$10) is less than the average market price (\$15).

$$\text{Incremental shares} = \frac{\$15 - \$10}{\$15} \times 15,000 = \underline{5,000}$$

OR

Proceeds from assumed exercise: (15,000 warrants X \$10 exercise price)	\$150,000
Treasury shares purchasable with proceeds: (\$150,000 ÷ \$15 average market price)	<u>10,000</u>

Incremental shares issued: (15,000 shares issued less 10,000 purchased)	<u>5,000</u>
--	--------------

- (b) Basic EPS = \$3.60  
(\$360,000 ÷ 100,000 shares)
- (c) Diluted EPS = \$3.43  
(\$360,000 ÷ 105,000 shares)

# TIME AND PURPOSE OF PROBLEMS

## **Problem 16-1** (Time 35-40 minutes)

Purpose—to provide the student with an opportunity to prepare entries to properly account for a series of transactions involving the issuance and exercise of common stock rights and detachable stock warrants, plus the granting and exercise of stock options. The student is required to prepare the necessary journal entries to record these transactions and the stockholders' equity section of the balance sheet as of the end of the year.

## **Problem 16-2** (Time 45-50 minutes)

Purpose—to provide the student with an understanding of the entries to properly account for convertible debt. The student is required to prepare the journal entries to record the conversion, amortization, and interest in connection with these bonds on specified dates.

## **Problem 16-3** (Time 30-35 minutes)

Purpose—to provide the student with an understanding of the entries to properly account for a stock option plan over a period of years. The student is required to prepare the journal entries when the stock option plan was adopted, when the options were granted, when the options were exercised, and when the options expired.

## **Problem 16-4** (Time 30-35 minutes)

Purpose—to provide the student with an understanding of the effect options and convertible bonds have on the computation of the weighted average number of shares outstanding with regard to basic EPS and diluted EPS. Preferred stock dividends must also be computed.

## **Problem 16-5** (Time 30-35 minutes)

Purpose—to provide the student with an understanding of the proper computation of the weighted average number of shares outstanding for two consecutive years. The student is also asked to determine whether the capital structure presented is simple or complex. A two-year comparative income statement with appropriate EPS presentation is also required.

## **Problem 16-6** (Time 35-45 minutes)

Purpose—the calculation of the number of shares used to compute basic and diluted earnings per share is complicated by a stock dividend, a stock split, and several issues of common stock during the year. To be determined are the number of shares to compute basic EPS, the number of shares to compute diluted EPS, and the numerator for computing basic EPS.

## **Problem 16-7** (Time 25-35 minutes)

Purpose—to provide the student a problem with multiple dilutive securities which must be analyzed to compute basic and diluted EPS.

## **Problem 16-8** (Time 30-40 minutes)

Purpose—the student calculates the weighted average number of common shares for computing earnings per share and prepares a comparative income statement including earnings per share data. In addition, the student explains a simple capital structure and the earnings per share presentation for a complex capital structure.

# SOLUTIONS TO PROBLEMS

**PROBLEM 16-1**

(a) 1. Memorandum entry made to indicate the number of rights issued.

2.	Cash .....	200,000	
	Discount on Bonds Payable* .....	15,385	
	Bonds Payable .....		200,000
	Paid-in Capital—Stock Warrants** .....		15,385

**\*Allocated to Bonds:**

$$\begin{array}{l} \underline{\$96} \\ \$96 + \$8 \end{array} \times \$200,000 = \$184,615;$$

$$\text{Discount} = \$200,000 - \$184,615 = \$15,385$$

**\*\*Allocated to Warrants:**

$$\begin{array}{l} \underline{\$8} \\ \$96 + \$8 \end{array} \times \$200,000 = \$15,385$$

3.	Cash* .....	288,000	
	Common Stock (9,000 X \$10) .....		90,000
	Paid-in Capital in Excess of Par .....		198,000

$$\begin{array}{l} *[(100,000 - 10,000) \text{ rights exercised}] \div \\ (10 \text{ rights/share}) \times \$32 = \$288,000 \end{array}$$

4.	Paid-in Capital—Stock Warrants .....	12,308	
	(15,385 X 80%)		
	Cash* .....	48,000	
	Common Stock (1,600 X \$10) .....		16,000
	Paid-in Capital in Excess of Par .....		44,308

$$\begin{array}{l} *.80 \times \$200,000 / \$100 \text{ per bond} = 1,600 \\ \text{warrants exercised; } 1,600 \times \$30 = \$48,000 \end{array}$$

**PROBLEM 16-1 (Continued)**

5. Compensation Expense* .....	50,000	
Paid-in Capital—Stock Options.....		50,000

\*\$10 X 5,000 options = \$50,000

6. <u>For options exercised:</u>		
Cash (4,000 X \$30) .....	120,000	
Paid-in Capital—Stock Options.....	40,000	
(80% X \$50,000)		
Common Stock (4,000 X \$10).....		40,000
Paid-in Capital in Excess of Par .....		120,000

For options lapsed:

Paid-in Capital—Stock Options.....	10,000	
Compensation Expense* .....		10,000

\*(Note to instructor: This entry provides an opportunity to indicate that a credit to Compensation Expense occurs when the employee fails to fulfill an obligation, such as remaining in the employ of the company, performing certain job functions, etc. Conversely, if a stock option lapses because the stock price is lower than the exercise price, then a credit to Paid-in Capital—Expired Stock Options occurs.)

**(b) Stockholders' Equity:**

**Paid-in Capital:**

Common Stock, \$10 par value, authorized 1,000,000 shares, 314,600 shares issued and outstanding		\$3,146,000	
Paid-in Capital in Excess of Par*		962,308	
Paid-in Capital—Stock Warrants*		<u>3,077</u>	\$4,111,385
Retained Earnings			<u>750,000</u>
Total Stockholders' Equity			<u>\$4,861,385</u>

\*These two accounts often are combined into one category called Additional Paid-in Capital, for financial reporting purposes.

## PROBLEM 16-1 (Continued)

### Calculations:

	<b>Common Stock</b>	<b>Paid-in Capital in Excess of Par</b>
At beginning of year	300,000 shares	\$600,000
From stock rights (entry #3 above)	9,000 shares	198,000
From stock warrants (entry #4 above)	1,600 shares	44,308
From stock options (entry #6 above)	<u>4,000 shares</u>	<u>120,000</u>
Total	<u>314,600 shares</u>	<u>\$962,308</u>

**PROBLEM 16-2**

(a) **Entries at August 1, 2005**

<b>Bonds Payable .....</b>	<b>150,000</b>	
<b>Discount on Bonds Payable (Schedule 1).....</b>		<b>3,032*</b>
<b>Common Stock (8 X 150 X \$100) .....</b>		<b>120,000</b>
<b>Paid-in Capital in Excess of Par .....</b>		<b>26,968**</b>
(To record the issuance of 1,200 shares of common stock in exchange for \$150,000 of bonds and the write-off of the discount on bonds payable)		

\*(\$34,000 X 1/10) X (107/120)  
 \*\*(\$150,000 – \$3,032) – \$120,000

<b>Interest Payable .....</b>	<b>1,500</b>	
<b>Cash (\$150,000 X 12% X 1/12).....</b>		<b>1,500</b>
(To record payment in cash of interest accrued on bonds converted as of August 1, 2005)		

(b) **Entries at August 31, 2005**

<b>Bond Interest Expense .....</b>	<b>255*</b>	
<b>Discount on Bonds Payable (Schedule 1).....</b>		<b>255</b>
(To record amortization of one month's discount on \$1,350,000 of bonds)		

\*(\$34,000 X 90%) X (1/120)

<b>Bond Interest Expense .....</b>	<b>13,500</b>	
<b>Interest Payable (\$1,350,000 X 12% X 1/12)....</b>		<b>13,500</b>
(To record accrual of interest for August on \$1,350,000 of bonds at 12%)		

(c) **Entries at December 31, 2005**  
 (Same as August 31, 2005, and the following closing entry)

<b>Income Summary .....</b>	<b>175,756</b>	
<b>Bond Interest Expense* .....</b>		<b>175,756</b>
(To close expense account)		

\*(\$3,256 + \$172,500)

**PROBLEM 16-2 (Continued)**

**Schedule 1**  
**Monthly Amortization Schedule**

**Unamortized discount on bonds payable:**

Amount to be amortized over 120 months	<u>\$34,000</u>
Amount of monthly amortization ( $\$34,000 \div 120$ )	<u>\$283</u>
Amortization for 13 months to July 31, 2005 ( $\$283 \times 13$ )	<u>\$3,679</u>
Balance unamortized 7/31/05 ( $\$34,000 - \$3,679$ )	<u>\$30,321</u>
10% applicable to debentures converted	<u>3,032</u>
Balance August 1, 2005	<u>\$27,289</u>
Remaining monthly amortization over remaining 107 months	<u>\$255</u>

**Schedule 2**  
**Interest Expense Schedule**

**Amortization of bond discount charged to bond interest expense in 2005 would be as follows:**

7 months X \$283.00	\$1,981
5 months X \$255.00	1,275
Total	<u>\$3,256</u>

**Interest on Bonds:**

12% on \$1,500,000	<u>\$180,000</u>
Amount per month ( $\$180,000 \div 12$ )	<u>\$15,000</u>
12% on \$1,350,000	<u>\$162,000</u>
Amount per month ( $\$162,000 \div 12$ )	<u>\$13,500</u>
Interest for 2005 would be as follows:	
7 months X \$15,000	\$105,000
5 months X \$13,500	<u>67,500</u>
Total	<u>\$172,500</u>

**Total interest**

Amortization of discount	\$ 3,256
Cash interest paid	<u>172,500</u>
Bond interest expense	<u>\$175,756</u>

**PROBLEM 16-3**

2002. No journal entry would be recorded at the time the stock option plan was adopted. However, a memorandum entry in the journal might be made on November 30, 2002, indicating that a stock option plan had authorized the future granting to officers of options to buy 70,000 shares of \$5 par value common stock at \$8 a share.

<u>2003</u>	January 2		
	No entry		
	December 31		
	Compensation Expense .....	132,000	
	Paid-in Capital—Stock Options .....		132,000
	(To record compensation expense attributable to 2003—22,000 options at \$6 (\$14 – \$8))		

<u>2004</u>	December 31		
	Compensation Expense .....	120,000	
	Paid-in Capital—Stock Options .....		120,000
	(To record compensation expense attributable to 2004—20,000 options at \$6 (\$14 – \$8))		
	Paid-in Capital—Stock Options .....	132,000	
	Paid-in Capital from Expired Stock Options.....		132,000
	(To record lapse of president’s and vice president’s options to buy 22,000 shares)		

**(Note to instructor: This entry provides an opportunity to indicate when a credit to compensation expense might result. APB Opinion No. 25, as well as SFAS No. 123, states that if a stock option is not exercised because an employee fails to fulfill an obligation, the estimate of compensation expense recorded in previous periods should be adjusted (as a change in estimate) by decreasing compensation expense in the period of forfeiture and debiting the paid-in capital account.)**

**PROBLEM 16-3 (Continued)**

**2005**

**December 31**

<b>Cash (20,000 X \$8) .....</b>	<b>160,000</b>	
<b>Paid-in Capital—Stock Options .....</b>	<b>120,000</b>	
<b>(20,000 X \$6)</b>		
<b>Common Stock (20,000 X \$5) .....</b>		<b>100,000</b>
<b>Paid-in Capital in Excess of Par .....</b>		<b>180,000</b>
<b>(To record issuance of 20,000 shares     of \$5 par value stock upon exercise     of options at option price of \$8 and a     market price of \$14 at date of grant)</b>		

<b>PROBLEM 16-4</b>
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The computation of Dewey Yaeger Pharmaceutical Industries' basic earnings per share and the diluted earnings per share for the fiscal year ended June 30, 2005, are shown below.

$$\begin{aligned}
 \text{(a) Basic earnings per share} &= \frac{\text{Net income} - \text{Preferred dividends}}{\text{Average common shares outstanding}} \\
 &= \frac{\$1,500,000 - \$106,250^1}{1,000,000} \\
 &= \frac{\$1,393,750}{1,000,000} \\
 &= \underline{\$1.3937} \text{ or } \underline{\$1.39} \text{ per share}
 \end{aligned}$$

$$\begin{aligned}
 ^1\text{Preferred dividend} &= .085 \times \$1,250,000 \\
 &= \$106,250
 \end{aligned}$$

$$\begin{aligned}
 \text{(b) Diluted earnings per share} &= \frac{\text{Net income} - \text{Preferred dividends} + \text{Interest (net of tax)}}{\text{Average common shares} + \text{Potentially dilutive common shares}} \\
 &= \frac{\$1,500,000 - \$106,250 + \$210,000^2}{1,000,000 + 250,000^3 + 25,000^4} \\
 &= \frac{\$1,603,750}{1,275,000} \\
 &= \underline{\$1.2578} \text{ or } \underline{\$1.26} \text{ per share}
 \end{aligned}$$

$$\begin{aligned}
 ^2\text{Use "if converted" method for 7\% bonds} \\
 \text{Adjustment for interest expense (net of tax)} \\
 (\$5,000,000 \times .07 \times .6) & \qquad \qquad \qquad \$210,000
 \end{aligned}$$

$$\begin{aligned}
 ^3\text{Shares assumed to be issued if converted} \\
 \$5,000,000 \div \$1,000/\text{bond} \times 50 \text{ shares} & \qquad \qquad \qquad 250,000
 \end{aligned}$$

**PROBLEM 16-4 (Continued)**

**<sup>4</sup>Use treasury stock method to determine incremental shares outstanding**

<b>Proceeds from exercise of options (100,000 X \$15)</b>	<b><u>\$1,500,000</u></b>
<b>Shares issued upon exercise of options</b>	<b>100,000</b>
<b>Shares purchasable with proceeds (Proceeds ÷ Average market price) (\$1,500,000 ÷ \$20)</b>	<b><u>75,000</u></b>
<b>Incremental shares outstanding</b>	<b><u>25,000</u></b>

**PROBLEM 16-5**

- (a) Hillel Corporation has a simple capital structure since it does not have any potentially dilutive securities.
- (b) The weighted average number of shares that Hillel Corporation would use in calculating earnings per share for the fiscal years ended May 31, 2003, and May 31, 2004, is 2,800,000 and 3,400,000 respectively, calculated as follows:

Event	Dates Outstanding	Shares Outstanding	Restatement	Fraction of Year	Weighted Shares
Beginning balance	June 1–Oct. 1	2,000,000	1.20	4/12	800,000
New Issue	Oct. 1–May 31	2,500,000	1.20	8/12	<u>2,000,000</u>
					<u>2,800,000</u>

Event	Dates Outstanding	Shares Outstanding	Restatement	Fraction of Year	Weighted Shares
Beginning balance	June 1–Dec. 1	3,000,000		6/12	1,500,000
New Issue	Dec. 1–May 31	3,800,000		6/12	<u>1,900,000</u>
					<u>3,400,000</u>

(c) **HILLEL CORPORATION**  
**Comparative Income Statement**  
**For Fiscal Years Ended May 31, 2003 and 2004**

	2003	2004
Income from operations	\$1,800,000	\$2,500,000
Interest expense <sup>1</sup>	<u>240,000</u>	<u>240,000</u>
Income before taxes	1,560,000	2,260,000
Income taxes at 40%	<u>624,000</u>	<u>904,000</u>
Income before extraordinary item	936,000	1,356,000
Extraordinary loss, net of income taxes of \$200,000		<u>300,000</u>
Net income	<u>\$936,000</u>	<u>\$1,056,000</u>
<b>Earnings per share:</b>		
Income before extraordinary loss	\$.31 <sup>2</sup>	\$.38 <sup>3</sup>
Extraordinary loss		<u>.09<sup>4</sup></u>
Net income	<u>\$.31</u>	<u>\$.29<sup>5</sup></u>

## PROBLEM 16-5 (Continued)

$$\begin{aligned} {}^1\text{Interest expense} &= \$2,400,000 \times .10 \\ &= \$240,000 \end{aligned}$$

$$\begin{aligned} {}^2\text{Earnings per share} &= \frac{(\text{Net income} - \text{Preferred dividends})}{\text{Weighted Average Number of Common Shares}} \\ &= \frac{(\$936,000 - \$80,000^*)}{2,800,000} \\ &= \underline{\$ .31} \text{ per share} \end{aligned}$$

$$\begin{aligned} {}^*\text{Preferred dividends} &= (\text{No. of Shares} \times \text{Par Value} \times \text{Dividend \%}) \\ &= (20,000 \times \$50 \times .08) \\ &= \$80,000 \text{ per year} \end{aligned}$$

$$\begin{aligned} {}^3\text{Earnings per share} &= \frac{(\$1,356,000 - \$80,000)}{3,400,000} \\ &= \underline{\$ .38} \text{ per share} \end{aligned}$$

$$\begin{aligned} {}^4\text{Earnings per share} &= \frac{\text{Extraordinary Item}}{\text{Weighted Average Common Shares}} \\ &= \frac{\$300,000}{3,400,000} \\ &= \underline{\$ .09} \text{ per share} \end{aligned}$$

$$\begin{aligned} {}^5\text{Earnings per share} &= \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Common Shares}} \\ &= \frac{\$1,056,000 - \$80,000}{3,400,000} \\ &= \underline{\$ .29} \end{aligned}$$

<b>PROBLEM 16-6</b>
---------------------

- (a) The number of shares used to compute basic earnings per share is 6,736,000, as calculated below.

Event	Dates Outstanding	Shares Outstanding	Restatement	Fraction of Year	Weighted Shares
Beginning Balance, including 5% stock dividend	Jan. 1–Apr. 1	3,150,000	2.0	3/12	1,575,000
Conversion of preferred stock	Apr. 1–July 1	3,360,000	2.0	3/12	1,680,000
Stock split	July 1–Aug. 1	6,720,000		1/12	560,000
Issued shares for building	Aug. 1–Nov. 1	7,020,000		3/12	1,755,000
Purchase of Treasury stock	Nov. 1–Dec. 31	6,996,000		2/12	<u>1,166,000</u>
Total number of common shares to compute basic earnings per share					<u><u>6,736,000</u></u>

- (b) The number of shares used to compute diluted earnings per share is 7,891,000, as shown below.

Number of shares to compute basic earnings per share	6,736,000
Convertible preferred stock—still outstanding (500,000 X 2 X 1.05)	1,050,000
Convertible preferred stock—converted (200,000 X 2 X 1.05 X 3/12)	<u>105,000</u>
Number of shares to compute diluted earnings per share	<u><u>7,891,000</u></u>

- (c) The adjusted net income to be used as the numerator in the basic earnings per share calculation for the year ended December 31, 2004, is \$11,900,000, as computed below.

After-tax net income	\$13,550,000
Preferred stock dividends	
March 31 (700,000 X \$.75)	\$ 525,000
June 30, September 30, and December 31 (500,000 X \$.75 X 3)	<u>1,125,000</u>
Adjusted net income	<u><u>\$11,900,000</u></u>

<b>PROBLEM 16-7</b>
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$$(a) \text{ Basic EPS} = \frac{\$1,200,000 - (\$3,000,000 \times .06)}{600,000^*}$$

$$= \underline{\underline{\$1.70}} \text{ per share}$$

\*\$6,000,000 ÷ \$10

$$(b) \text{ Diluted EPS} = \frac{(\text{Net income} - \text{Preferred dividends}) + \text{Interest savings (net of tax)}}{\text{Average common shares} + \text{Potentially dilutive common shares}}$$

$$= \frac{\$1,200,000 - \$180,000^a + \$96,000^b}{600,000 + 10,000^c + 80,000^d}$$

$$= \frac{\$1,116,000}{690,000}$$

$$= \underline{\underline{\$1.62}} \text{ per share}$$

<sup>a</sup>\$3,000,000 X .06; Preferred stock is not assumed converted since conversion would be antidilutive.

<sup>b</sup>\$2,000,000 X .08 X (1 - .40)

$$\frac{m - o}{m} \times \# \text{ of options} = \text{incremental shares}$$

$$\frac{\$25 - \$20}{\$25} \times 50,000 = 10,000$$

<sup>d</sup>(\$2,000,000 ÷ \$1,000) X 40 shares/bond

<b>PROBLEM 16-8</b>
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(a)	Weighted Average Shares	
	Before Stock Dividend	After Stock Dividend
Total as of June 1, 2002	1,500,000	1,800,000
Issue of September 1, 2002	<u>400,000</u>	<u>480,000</u>
Total as of May 31, 2004	<u>1,900,000</u>	<u>2,280,000</u>
1. 1,800,000 X 3/12 =		450,000
2,280,000 X 9/12 =		<u>1,710,000</u>
Total		<u>2,160,000</u>
2. 2,280,000 X 12/12		<u>2,280,000</u>

(b) **CORDELIA CORPORATION**  
**Comparative Income Statement**  
**For the Years Ended May 31, 2004 and 2003**

	2004	2003
Income from operations before income taxes	\$1,400,000	\$660,000
Income taxes	<u>560,000</u>	<u>264,000</u>
Income before extraordinary item	840,000	396,000
Extraordinary item—loss from earthquake, less applicable income taxes of \$200,000	<u>300,000</u>	<u>          </u>
Net income	<u>\$ 540,000</u>	<u>\$ 396,000</u>
Per share of common stock		
Income before extraordinary item	\$.24 <sup>1</sup>	\$.04 <sup>3</sup>
Extraordinary loss, net of tax	<u>(.13)<sup>4</sup></u>	
Net income	<u>\$.11<sup>2</sup></u>	<u>\$.04</u>

## PROBLEM 16-8 (Continued)

$$\text{EPS calculations} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average common shares}}$$

$$\text{Preferred dividends} = 50,000 \times \$100 \times .06 = \$300,000$$

$$\text{Extraordinary loss per share calculation} = \frac{\text{Loss}}{\text{Weighted average common shares}}$$

$$^1(\$840,000 - \$300,000) \div 2,280,000 = \$.24$$

$$^2(\$540,000 - \$300,000) \div 2,280,000 = \$.11$$

$$^3(\$396,000 - \$300,000) \div 2,160,000 = \$.04$$

$$^4\$300,000 \div 2,280,000 = \$.13$$

- (c) 1. A corporation's capital structure is regarded as simple if it consists only of common stock or includes no potentially dilutive securities. Cordelia Corporation has a simple capital structure because it has not issued any convertible securities, warrants, or stock options, and there are no existing rights or securities that are potentially dilutive of its earnings per common share.
2. A corporation having a complex capital structure would be required to make a dual presentation of earnings per share; i.e., both basic earnings per share and diluted earnings per share. This assumes that the potentially dilutive securities are not antidilutive.

The basic earnings per share computation uses only the weighted average of the common stock outstanding. The diluted earnings per share computation assumes the conversion or exercise of all potentially dilutive securities that are not antidilutive.

# TIME AND PURPOSE OF CASES

## **Case 16-1** (Time 20-25 minutes)

Purpose—to provide the student with an understanding of the underlying rationale behind the accounting treatments for the issuance of convertible bonds versus the situation when the debt instrument and the warrants are separable. The student is required to describe the differences that exist in accounting for the original proceeds of these two types of issuances, and the arguments which have been presented in support of these differences. This case also requires the interpretation of a situation involving an issuance of long-term notes and warrants, and the preparation of the necessary journal entry.

## **Case 16-2** (Time 15-20 minutes)

Purpose—the student discusses the ethical issues related to an earnings-based compensation plan.

## **Case 16-3** (Time 15-20 minutes)

Purpose—to provide the student with an understanding of the proper accounting and conceptual merits for the issuance of stock warrants to three different groups: existing stockholders, key employees, and purchasers of the company's bonds. This problem requires the student to explain and discuss the reasons for using warrants, the significance of the price at which the warrants are issued (or granted) in relation to the current market price of the company's stock, and the necessary information that should be disclosed in the financial statements when stock warrants are outstanding for each of the groups.

## **\*Case 16-4** (Time 25-30 minutes)

Purpose—to provide the student with an understanding of the concepts surrounding a plan adopted by a company to give additional incentive compensation to its dealers and a stock appreciation rights (SAR) plan. The student is required to compute the amount of selling expense which should be reported in each of the years covered by the incentive compensation program. This case also requires an explanation of what a stock appreciation rights plan is and the potential disadvantages of an SAR plan from the viewpoint of the company.

## **Case 16-5** (Time 25-30 minutes)

Purpose—to provide the student with an opportunity to respond to a contrary view of the FASB's standard on "Accounting for Stock-Based Compensation," and to defend the concept of neutrality in financial accounting and reporting.

## **Case 16-6** (Time 25-35 minutes)

Purpose—to provide the student with an understanding of how earnings per share is affected by preferred dividends and convertible debt. The student is required to explain how preferred dividends and convertible debt are handled for EPS computations. The student is also required to explain when the "treasury stock method" is applicable in EPS computations.

## **Case 16-7** (Time 25-35 minutes)

Purpose—to provide the student with some familiarity with the applications of **APB Opinion No. 15** dealing with earnings per share. The student is required to explain the general concepts of EPS in regard to a specific capitalization structure, and to discuss the proper treatment, if any, that should be given to a list of items in computing earnings per share of common stock for financial statement reporting.

## **Case 16-8** (Time 25-35 minutes)

Purpose—to provide the student with an opportunity to articulate the concepts and procedures related to antidilution. Responses are provided in a written memorandum.

# SOLUTIONS TO CASES

## CASE 16-1

- (a) 1. When the debt instrument and the option to acquire common stock are inseparable, as in the case of convertible bonds, the entire proceeds of the bond issue should be allocated to the debt and the related premium or discount accounts.

When the debt and the warrants are separable, the proceeds of their sale should be allocated between them. The basis of allocation is their relative fair values. As a practical matter, these relative values are usually determined by reference to the price at which the respective instruments are traded in the open market.

Thus, if the debt alone would bring six times as much as would the stock warrants if sold separately, one-seventh of the total proceeds should be apportioned to the warrants and six-sevenths to the debt securities. That portion of the proceeds assigned to the warrants should be accounted for as paid-in capital. The result may be that the debt is issued at a reduced premium or at a discount.

2. In the case of convertible debt there are two principal reasons why all the proceeds should be ascribed to the debt. First, the option is inseparable from the debt. The investor in such securities has two mutually exclusive choices: be a creditor and later receive cash for the security; or give up all rights as a creditor and become a stockholder. There is no way to retain one right while selling the other. Second, the valuation of the conversion option or the debt security without the conversion option presents practical problems. For example, in the absence of separate transferability, no separate market values are established and the only values which could be assigned to each would be subjective.

Separability of the debt and the warrants and the establishment of a market value for each results in an objective basis for allocating proceeds to the two different equities—creditors' and stockholders'—involved.

3. Arguments have been advanced that accounting for convertible debt should be the same as for debt issued with detachable stock purchase warrants. Convertible debt has features of debt and stockholders' equity, and separate recognition should be given to those characteristics at the time of issuance. Difficulties encountered in separating the relative values of the features are not insurmountable and, in any case, should not result in a solution which ignores the problem. In effect, the company is selling a debt instrument and a call on its stock. Coexistence of the two features in one instrument is no reason why each cannot receive its proper accounting recognition. The practical difficulties of estimation of the relative values may be overcome with reliable professional advice. Allocation is a well-recognized accounting technique and could be applied in this case once reliable estimates of the relative values are known. If the convertible feature was added in order to sell the security at an acceptable price, the value of the convertible option is obviously material and recognition is essential. The question of whether or not the purchaser will exercise the option is not relevant to reflecting the separate elements at the time of issuance.

(b)	Cash .....	20,040,000	
	Discount on Bonds Payable (\$18,000,000 X 22%) .....	3,960,000	
	Bonds Payable .....		18,000,000
	Paid-in Capital—Stock Warrants (\$23 – \$18) X 1,200,000 .....		6,000,000

To record issuance of bonds at 22% discount with options to buy 1,200,000 shares of the company's \$10 par common stock at a price of \$5 a share below the current market value. Debt matures in ten years in equal annual installments of \$1,800,000 and warrants, if not exercised, lapse as bonds mature.

## CASE 16-2

- (a) Becker recognizes that altering the estimate will benefit Reiser and other executive officers of the company. Current stockholders and investors will be forced to pay out the bonuses, with the altered estimate as a critical factor.
- (b) The accountant's decision should not be based on the existence of the compensation plan.
- (c) Reiser's request should be denied.

## CASE 16-3

- (a)
  1. The objective of issuing warrants to existing stockholders on a pro-rata basis is to raise new equity capital. This method of raising equity capital may be used because of preemptive rights on the part of a company's stockholders and also because it is likely to be less expensive than a public offering.
  2. The purpose of issuing stock warrants to certain key employees, usually in the form of a non-qualified stock option plan, is to increase their interest in the long-term growth and income of the company and to attract new management talent. Also, this issuance of stock warrants to key employees under a stock option plan frequently constitutes an important element in a company's executive compensation program. Though such plans result in some dilution of the stockholders' equity when shares are issued, the plans provide an additional incentive to the key employees to operate the company efficiently.
  3. Warrants to purchase shares of its common stock may be issued to purchasers of a company's bonds in order to stimulate the sale of the bonds by increasing their speculative appeal and aiding in overcoming the objection that rising price levels cause money invested for long periods in bonds to lose purchasing power. The use of warrants in this connection may also permit the sale of the bonds at a lower interest cost.
- (b)
  1. Because the purpose of issuing warrants to existing stockholders is to raise new equity capital, the price specified in the warrants must be sufficiently below the current market price to reasonably assure that they will be exercised. Because the success of the offering depends entirely on the current market price of the company's stock in relation to the exercise price of the warrants, and because the objective is to raise capital, the length of time over which the warrants can be exercised is very short, frequently 60 days.
  2. Warrants may be offered to key employees below, at, or above the market price of the stock on the day the rights are granted except for incentive stock option plans. If a stock option plan is to provide a strong incentive, warrants that can be exercised shortly after they are granted and expire, say, within two or three years, usually must be exercisable at or near the market price at the date of the grant. Warrants that cannot be exercised for a number of years after they are granted or those that do not lapse for a number of years after they become exercisable may, however, be priced somewhat above the market price of the stock at the date of the grant without eliminating the incentive feature. This does not upset the principal objective of stock option plans, heightening the interest of key employees in the long-term success of the company.
  3. Income tax laws impose no restrictions on the exercise price of warrants issued to purchasers of a company's bonds. The exercise price may be above, equal to, or below the current market price of the company's stock. The longer the period of time during which the warrant can be exercised, however, the higher the exercise price can be and still stimulate the sale of the bonds because of the increased speculation appeal. Thus, the significance of the length of time over which the warrants can be exercised depends largely on the exercise price (or prices). A low exercise price in combination with a short exercise period can be just as successful as a high exercise price in combination with a long exercise period.

## CASE 16-3 (Continued)

- (c)
1. Financial statement information concerning outstanding stock warrants issued to a company's stockholders should include a description of the stock being offered for sale, the option price, the time period during which the rights may be exercised, and the number of rights needed to purchase a new share.
  2. Financial statement information concerning stock warrants issued to key employees should include the following: status of these plans at the end of each period presented, including the number of shares under option, options exercised and forfeited, the weighted average option prices for these categories, the weighted average fair value of options granted during the year, and the average remaining contractual life of the options outstanding. If APB Opinion No. 25 is used in the financial statements, these companies must still disclose the pro-forma net income and pro-forma net income per share, as if the fair value method had been used to account for the stock-based compensation cost.
  3. Financial statement disclosure of outstanding stock warrants that have been issued to purchasers of a company's bonds should include the prices at which they can be exercised, the length of time they can be exercised, and the total number of shares that can be purchased by the bondholders.

## \*CASE 16-4

- (a) The key to this problem is determination of the date on which the selling expense should be measured. The case presented here is analogous to a stock compensation situation explained in the chapter and it would be handled in the same manner. One may ask the question, "At what date did Sanford Co. forego its use of the shares?" Sanford gave up (granted) the 9,000 shares to the trust in 2002, not 2005, and therefore in 2002 Sanford gave up its interest in these shares irrevocably and has no further recourse. Even if the dealers do not perform satisfactorily, Sanford has forfeited its right to these shares.

In class, students will come up with many different answers (notably \$990,000 or \$110 per share), but it should be emphasized that Sanford gave up its compensation at date of grant and any increase in price subsequent to this point is a speculative gain or loss. The price that Sanford had in mind at date of grant was \$72,000. Assignment of the \$72,000 equally over the three years appears most appropriate, although some students might argue that some relationship with the change in the market price of the stock should be established. This approach has merit because the market price of the stock might be reflective of the benefits received from the dealers. However, that relationship is quite tenuous and a straight-line assignment appears the most reasonable from the information provided.

- (b) In a stock appreciation rights plan, the executive is given the right to receive share appreciation, which is defined as the excess of the market price of stock at the date of exercise over a preestablished price. This share appreciation may be paid in cash, shares, or a combination of both. The major advantage of SARs is that the executive often does not have to make a cash outlay at the date of exercise, but receives a payment for the share appreciation which may be used to pay any related income taxes.

A potential disadvantage from the viewpoint of the company is that the company has little control over the amount of compensation expense. Compensation expense to a real extent is a function of stock price changes which can lead to significant fluctuations in the amount of compensation expense recorded.

## CASE 16-5

- (a) In 1995, the FASB issued SFAS No. 123, *Accounting for Stock-Based Compensation*, that requires new accounting for employee stock options and other awards which are based on the price of a corporation's stock.

Generally, the standard indicates that employee stock options be treated like all other types of compensation and that their value be included in financial statements as part of the cost of employing people. The standard encourages but does not require that all types of stock options, fixed or variable, be recognized as compensation based on the fair value of the options. Fair value for public companies would be estimated using an option-pricing model. No adjustments after the grant date would be made for changes in the stock price—either up or down. Nonpublic companies would be permitted to use a “minimum value” method to estimate the value of their options. That method does not consider the volatility of the stock for which the employee is granted an option.

For both public and nonpublic companies, the value of the award would be charged to expense over the period in which employees provide the related service, which is considered the vesting period.

The standard would change current practice to recognize expense for fixed options for which none now is recognized. The accounting, however, often would result in less expense when applied to variable option plans. The maximum amount of expense resulting from a variable plan would be determined at the date of grant, rather than varying throughout the option period with stock market swings as it does today. The standard would level the playing field for different types of plans, and companies would be able to select compensation programs that achieve their desired economic objectives without overriding concerns about accounting results.

It should be noted, however, that companies can still elect to use APB Opinion No. 25 accounting. However, the note disclosure for companies using APB Opinion No. 25 must indicate what compensation expense would be under a fair value option pricing approach.

- (b) Here is an excerpt from a presentation given by Dennis Beresford on the concept of neutrality.

The Board often hears that we should take a broader view, that we must consider the economic consequences of a new accounting standard. The FASB should not act, critics maintain, if a new accounting standard would have undesirable economic consequences. We have been told that the effects of accounting standards could cause lasting damage to American companies and their employees. Some have suggested, for example, that recording the liability for retiree health care or the costs for stock-based compensation will place U.S. companies at a competitive disadvantage. These critics suggest that because of accounting standards, companies may reduce benefits or move operations overseas to areas where workers do not demand the same benefits. These assertions are usually combined with statements about desirable goals, like providing retiree health care or creating employee incentives.

There is a common element in those assertions. The goals are desirable but the means require that the Board abandon neutrality and establish reporting standards that conceal the financial impact of certain transactions from those who use financial statements. Costs of transactions exist whether or not the FASB mandates their recognition in financial statements. For example, not requiring the recognition of the cost of stock options or ignoring the liabilities for retiree health care benefits does not alter the economics of the transactions. It only withholds information from investors, creditors, policy makers, and others who need to make informed decisions and, eventually, impairs the credibility of financial reports.

One need only look to the collapse of the thrift industry to demonstrate the consequences of abandoning neutrality. During the 1970s and 1980s, regulatory accounting principles (RAP) were altered to obscure problems in troubled institutions. Preserving the industry was considered a greater good.

## CASE 16-5 (Continued)

Many observers believe that the effect was to delay action and hide the true dimensions of the problem. The public interest is best served by neutral accounting standards that inform policy rather than promote it. Stated simply, truth in accounting is always good policy.

Neutrality does not mean that accounting should not influence human behavior. We expect that changes in financial reporting will have economic consequences, just as economic consequences are inherent in existing financial reporting practices. Changes in behavior naturally follow from more complete and representationally faithful financial statements. The fundamental question, however, is whether those who measure and report on economic events should somehow screen the information before reporting it to achieve some objective. In FASB Concepts Statement No. 2, *Qualitative Characteristics of Accounting Information* (paragraph 102), the Board observed:

Indeed, most people are repelled by the notion that some “big brother,” whether government or private, would tamper with scales or speedometers surreptitiously to induce people to lose weight or obey speed limits or would slant the scoring of athletic events or examinations to enhance or decrease someone’s chances of winning or graduating. There is no more reason to abandon neutrality in accounting measurement.

The Board continues to hold that view. The Board does not set out to achieve particular economic results through accounting pronouncements. We could not if we tried. Beyond that, it is seldom clear which result we should seek because our constituents often have opposing viewpoints. Governments, and the policy goals they adopt, frequently change.

## CASE 16-6

- (a) Dividends on outstanding preferred stock must be subtracted from net income or added to net loss for the period before computing EPS on the common shares. This generalization will be modified by the various features and different requirements preferred stock may have with respect to dividends. Thus, if preferred stock is cumulative, it is necessary to subtract its current dividend requirements from net income (or to add them to net loss) regardless of whether or not the preferred dividends were actually declared. Where the preferred shares are noncumulative, only preferred dividends actually declared during the current period need be subtracted from net income (or added to net loss) to arrive at the income to be used in EPS calculations.

In case the preferred shares are convertible into common stock, when assuming conversion, dividend requirements on the preferred shares are not deducted from net income. This applies when testing for potential dilution to determine whether or not the diluted EPS figures for the period are lower than earnings per common share figures.

- (b) When options and warrants to buy common stock are outstanding and their exercise price (i.e., proceeds the corporation would derive from issuance of common stock pursuant to the warrants and options) is less than the average price at which the company could acquire its outstanding shares as treasury stock, the treasury stock method is generally applicable. In these circumstances, existence of the options and warrants would be dilutive. However, if the exercise price of options and warrants exceeded the average price of the common stock, the cash proceeds from their assumed exercise would provide for repurchasing more common shares than were issued when the warrants were exercised, thereby reducing the number of shares outstanding. In these circumstances assumed exercise of the warrants would be antidilutive, so exercise would not be presumed for purposes of computing diluted EPS.
- (c) In arriving at the calculation of diluted EPS figures where convertible debentures are assumed to be converted, their interest (net of tax) is added back to net income as the numerator element of the EPS calculation while the weighted average number of shares of common stock into which they would be convertible is added to the shares outstanding to arrive at the denominator element of the calculation.

## CASE 16-7

- (a) Earnings per share, as it applies to a corporation with a capitalization structure composed of only one class of common stock, is the amount of earnings applicable to each share of common stock outstanding during the period for which the earnings are reported. The computation of earnings per share should be based on a weighted average of the number of shares outstanding during the period with retroactive recognition given to stock splits or reverse splits and to stock dividends. The computation should be made for income from continuing operations, income before extraordinary items, income before accounting change, and net income. Companies that report a discontinued operation, an extraordinary item, or the cumulative effect of an accounting change should present per share amounts for those line items either on the face of the income statement or in the notes to the financial statements.
- (b) Treatments to be given to the listed items in computing earnings per share are:
1. Outstanding preferred stock with a par value liquidation right issued at a premium, although affecting the determination of book value per share, will not affect the computation of earnings per share for common stock except with respect to the dividends as discussed in (b) 4. below.
  2. The exercise of a common stock option results in an increase in the number of shares outstanding, and the computation of earnings per share should be based on the weighted average number of shares outstanding during the period. The exercise of a stock option by the grantee does not affect earnings, but any compensation to the officers from the granting of the options would reduce net income and earnings per share.
  3. The replacement of a machine immediately prior to the close of the current fiscal year will not affect the computation of earnings per share for the year in which the machine is replaced. The number of shares remains unchanged and since the old machine was sold for its book value, earnings are unaffected.
  4. Dividends declared on preferred stock should be deducted from income from continuing operations, income before extraordinary items, and net income before computing earnings per share applicable to the common stock and other residual securities. If the preferred stock is cumulative, this adjustment is appropriate whether or not the amounts of the dividends are declared or paid.
  5. Acquiring treasury shares will reduce the weighted average number of shares outstanding used in the EPS denominator.
  6. When the number of common shares outstanding increases as a result of a 2-for-1 stock split during the year, the computation should be based on twice the number of weighted average shares outstanding prior to the stock split. Retroactive recognition should be given for all prior years presented.
  7. The existence of a provision for a contingent liability on a possible lawsuit created out of retained earnings will not affect the computation of earnings per share since the appropriation of retained earnings does not affect net income or the number of shares of stock outstanding.

## CASE 16-8

Dear Mr. Kacskos:

I hope that the following brief explanation helps you understand why your warrants were not included in Howat's earnings per share calculations.

Earnings per share (EPS) provides income statement users a quick assessment of the earnings that were generated for each common share outstanding over a given period. When a company issues only common and preferred stock, it has a simple capital structure; consequently, the only ratio needed to calculate EPS is the following:

$$(\text{Net Income} - \text{Preferred Dividends}) \div \text{Average Number of Common Shares Outstanding}$$

However, corporations that have outstanding a variety of other securities—convertible bonds, convertible preferred stock, stock options, and stock warrants—have a complex capital structure. Because these securities could be converted to common stock, they have a potentially “dilutive” effect on EPS.

In order not to mislead users of financial information, the accounting profession insists that EPS calculations be conservative. Thus, a security which might dilute EPS must be figured into EPS calculations as though it had been converted into common stock. Basic EPS assumes a weighted average of common stock outstanding while diluted EPS assumes that any potentially dilutive security has been converted.

Some securities, however, might actually inflate the EPS figure rather than dilute it. These securities are considered antidilutive and are excluded from the EPS computation. Take, for example, your warrants. The computations below provide a good example of how options and warrants are treated in diluted EPS. In these computations, we assume that Howat will purchase treasury stock using the proceeds from the exercise of your warrants.

When you exercise your 15,000 warrants at \$30, the company does not simply add 15,000 shares to common stock outstanding; rather, for diluted EPS, Howat is assumed to purchase and retire 18,000  $[(15,000 \times \$30) \div \$25]$  shares of treasury stock at \$25 with the proceeds. Therefore, if you add the 15,000 exercised warrants to the common stock outstanding and then subtract the 18,000 shares presumably purchased, the number of shares outstanding would be reduced to 97,000  $(100,000 + 15,000 - 18,000)$ . Because the ratio's denominator would be reduced by this inclusion, it would cause the ratio to increase, which defeats the purpose of the assumed exercise. These warrants are considered antidilutive and, therefore, are not included in EPS calculations.

This explanation should address any concerns you may have had about the use of your warrants in EPS calculations. If you have any further questions, please call me.

Sincerely,

Ms. Smart Student  
Accountant

## FINANCIAL REPORTING PROBLEM

- (a) (1) Under 3M's General Employee Stock Purchase plan (Note 17), 15 million shares are authorized to be issued.
- (2) At year-end, 2001, 9.6 million shares were available for grant to eligible employees.
- (3) In 2001, employees purchased 998,276 shares for \$93.7 million. (998,276 X \$93.85)
- (b) (1) At December 31, 2001, the range of exercise prices for options outstanding under 3M's MSOP Plan was \$46.01 to \$122.9.
- (2) These options will expire 10 years from the date of grant.
- (3) The accounts to which the proceeds from these option exercises are credited are Common Stock and Paid-in Capital in Excess of Par Value.
- (4) The number of shares of outstanding options at December 31, 2001 under the MSOP Plan is 34.5 million at a weighted average exercise price of \$88.12.
- (5) The number of options available under the MSOP at December 31, 2001 is 27.5 million at a weighted average exercise price of \$80.98.

(c) (In millions—except per share)	2001	2000	1999
Weighted average common shares	399.9	399.9	406.5
Diluted earnings per share	3.58	4.45	4.34

(d) From note 19:	
Reported net income	\$1,430
Pro forma net income based on estimated fair value	<u>1,278</u>
Compensation Expense using Fair Value Method	<u>\$ 152</u>

## FINANCIAL STATEMENT ANALYSIS CASE

Regardless of whether the intrinsic value or fair value method is used, full disclosure should be made about the status of these plans at the end of the periods presented, including the number of shares under option, options exercised and forfeited, the weighted average option prices for these categories, the weighted average fair value of options granted during the year, and the average remaining contractual life of the options outstanding. In addition to information about the status of the stock option plan, companies must also disclose the method and significant assumptions used to estimate the fair values of the stock options.

Kellogg Company, in compliance with FASB Statement No. 123, provided the following information in its Note 8 (in part):

The Company has elected to account for the stock option plans under APB #25, "Accounting for Stock Issued to Employees." Accordingly, no compensation cost has been recognized for these grants. The fair value of each option grant was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted average assumptions:

	2001	2000
Risk-free interest rate	4.57%	6.59%
Dividend yield	3.3%	3.9%
Volatility	28.21%	25.43%
Average expected term (years)	3.08	3.17

For purposes of pro forma disclosures, the estimated fair value of the options is amortized to expense over the options' vesting period. The Company's net earnings and earnings per share are estimated as follows:

<i>(millions, except per share data)</i>	2001	2000
Net earnings	449.9	567.1
Net earnings per share	1.11	1.40

## COMPARATIVE ANALYSIS CASE

- (a) Coca-Cola sponsors restricted stock award plans, and stock option plans.

PepsiCo grants stock options to employees under four different incentive plans—the SharePower Stock Option Plan, the Long-Term Incentive Plan, the Stock Option Incentive Plan, and the Quaker Long-Term Incentive Plan.

	Coca-Cola	PepsiCo
(b) Options outstanding at year-end 2001	141,000,000	176,922,000
(c) Options granted during 2001	45,000,000	40,432,000
(d) Options exercised during 2001	7,000,000	29,064,000
(e) Range of option prices exercised during 2001	\$20–\$86.75	\$4.25–\$49.00

(f) Weighted Average Number of Shares		
(in millions)	Coca-Cola	PepsiCo
2001	2,487	1,807
2000	2,487	1,791
1999	2,487	1,817

(g) Earnings Per Share		
(in millions)	Coca-Cola	PepsiCo
2001	\$1.60	\$1.47
2000	\$ .88	\$1.42
1999	\$ .98	\$1.38

## RESEARCH CASES

### CASE 1

- (a) SFAS 123 was adopted by the affirmative vote of 5 members. Messrs. Foster and Leisenring dissented.
- (b) The dissenters believed that the compensation associated with employee stock options should be recognized in the financial statements, not merely reflected in pro forma disclosures. Since employee stock options represent compensation and the cost can be determined with sufficient reliability, the dissenters argued that *FASB Concepts Statement No. 5*, "Recognition and Measurement in Financial Statements of Business Enterprises," mandates recognition over disclosure.
- (c) The modified grant method would have been acceptable to the dissenters if the resulting cost was recognized in the financial statements. Even though the dissenters find the modified grant method flawed, recognition of the associated amount is better than non-recognition.

### CASE 2

- (a) Although not stated explicitly, the shares could come from authorized but unissued shares or AES could purchase shares in the market via treasury stock transactions.
- (b) Registering shares is a form of designation indicating that the shares may need to be issued . . . in this case to the lenders or to its subsidiaries. This does not affect the accounts but would be disclosed as part of its common stock disclosures related to shares outstanding and EPS disclosures.
- (c) Dilution refers to an increase in shares outstanding that dilutes the ownership stakes of existing shareholders, when new shares are issued. Registering shares results in an addition to shares outstanding, used to compute earnings per share. This is because shares are registered when it is likely that they will be issued to satisfy the claims of their subsidiary loans. That is, the shares are unregistered shares pledged as collateral and if the loans are not paid by the subsidiary, AES will have to issue shares equal in value to the loan payments.

## RESEARCH CASES (Continued)

- (d) *Dilution* is a problem for investors because it indicates a decline in their proportionate ownership in a company. Measuring the dilution of earnings per share is a problem because it entails several estimates and assumptions to arrive at diluted earnings per share figures. For example, how high must the probability of the loan default be before shares must be registered and dilution occurs? Will this threshold be the same for all companies? If not, diluted earnings per share numbers will not be comparable.

## INTERNATIONAL REPORTING CASE

- (a) In 2001, 2000, and 1999, income would have been higher under U.S. GAAP due to the accounting for incremental costs.
- (b) Clearly Canadian's comprehensive income under U.S. GAAP is a greater loss in 2001 due to unrealized losses on long-term investments and foreign currency translation adjustments.

Note to instructors: The accounting for investment securities is addressed in Chapter 17. While the accounting for foreign currency translation is beyond the scope of this text, it is one of the items reported in comprehensive income, which is not a required disclosure under Canadian GAAP.

- (c) One reason why foreign companies would not prepare their statements in accordance with U.S. GAAP is that it might make the statements *less* comparable to the statements of companies in their home country. For example, Clearly Canadian's shares also trade on Canadian exchanges with companies that do not trade on U.S. markets. In addition, some companies might be reluctant to report under U.S. GAAP because in many cases (as with Clearly Canadian in 2001) their income or equity would be lower.
- (d) Because Clearly Canadian repriced its options, it now accounts for the options using the intrinsic value approach (under U.S. GAAP). And since the exercise price of the options exceeds the market price, no expense would be recognized for the cost of the stock options under U.S. or Canadian GAAP. However, Clearly Canadian must disclose the impact on income if it would have used the fair value provisions of SFAS No. 123.

## PROFESSIONAL SIMULATION

### Explanation

- (a) The controller's computations were not correct in that the straight arithmetic average of the common shares outstanding at the beginning and end of the year was used.

The weighted average number of shares outstanding may be computed as follows:

Dates Outstanding	Shares Outstanding	Fraction of Year	Weighted Shares
Jan. 1–Oct. 1	1,285,000	9/12	963,750
Oct. 1–Dec. 1	1,035,000	2/12	172,500
Dec. 1–Dec. 31	1,200,000	1/12	<u>100,000</u>
Weighted average number of shares outstanding			<u><u>1,236,250</u></u>
Net income for year			\$3,374,960

$$\text{Earnings per share} = \frac{\$3,374,960}{1,236,250} = \$2.73$$

### Financial Statements

$$\text{Basic earnings per share} = \frac{\$3,374,960}{1,236,250} = \$2.73$$

$$\text{Diluted earnings per share} = \frac{\$3,374,960}{1,320,250^*} = \$2.56$$

## PROFESSIONAL SIMULATION (Continued)

### Schedule A

#### \*Computation of weighted average number of shares adjusted for dilutive securities

Average number of shares under options outstanding	140,000
Option price per share	X <u>\$10</u>
Proceeds upon exercise of options	\$1,400,000
Market price of common stock:	
Average	\$25
Treasury shares that could be repurchased with proceeds ( $\$1,400,000 \div \$25$ )	56,000
Excess of shares under option over treasury shares that could be repurchased ( $140,000 - 56,000$ )	<u>84,000</u>
Incremental shares	84,000
Average number of common shares outstanding	<u>1,236,250</u>
Weighted average number of shares adjusted for dilutive securities	<u>1,320,250</u>

