2.96/2.961 Management for Engineers

Fall 2012

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Accounting Quiz

Question 1: Financial Interpolation (20 points)

Complete the missing values from (a) to (i) in the chart below. Show your calculations (write an equation and solve it). Note that the first year of operations is 2009.
Answers without calculations will not get credit.

	2011	**2010**	**2009**
Assets			
Cash	400	500	300
Accounts Receivable	**(g)**	400	500
Inventory	300	**(d)**	400
Land	400	300	**(a)**
Property, plant, and equipment	800	600	500
Liabilities and Stockholder's Equity			
Accounts Payable	400	700	300
Loan	800	500	400
Contributed Capital	900	400	600
Retained Earnings	300	**(e)**	500
P&L			
Income	**(h)**	1300	**(b)**
Expenses	(700)	**(f)**	(300)
Net Income	(100)	500	600
Dividends	**(i)**	600	**(c)**

(a) (3 points)

Total assets = Total liabilities + Total stockholders' equity
$300 + 500 + 400 + (a)Land + 500 = 300 + 400 + 600 + 500
Land = $100

(b) (3 points)

Net income = Sales + Expenses
\$600 = (b)Sales - 300
<u>Sales = \$900</u>

(c) (3 points)

Ending retained earnings = Beginning retained earnings + Net income – Dividends
\$500 = \$0 + 600 – (c)Dividends
<u>Dividends = \$100</u>

(d) (3 points) & (e) (4 points)

Total assets = Total liabilities + Total stockholders' equity
\$500 + 400 + (d)Inventory + 300 + 600 = 700 + 500 + 400 + (e)Retained earnings

Ending retained earnings = Beginning retained earnings + Net income – Dividends
(e)Retained earnings = \$500 + 500 – 600
<u>(e)Retained earnings = \$400</u>
<u>(d)Inventory = \$200</u>

(f) (3 points)

Net income = Sales + Expenses
\$500 = \$1300 + (f)Expenses
<u>Expenses = -\$800 → (800)</u>

(g) (3 points)

Total assets = Total liabilities + Total stockholders' equity
\$400 + (g)Accounts receivable + 300 + 400 + 800 = 400+ 800 + 900 + 300
<u>Accounts receivable = \$500</u>

(h) (3 points)

Net income = Sales + Expenses
-\$100 = (h)Sales - 700
<u>Expenses = \$600</u>

(i) (3points)

Ending retained earnings = Beginning retained earnings + Net income – Dividends
\$300 = 400 - 100 – (i)Dividends
Dividends = \$0

Question 2: Recording Transactions (40 points)

For each event in (a) – (e):

(i) Record the transaction using the balance sheet equation. Be specific about account names. Be sure to label each account as Asset (A), Liability (L), or Equity (E). Equity (E) includes income statement items (e.g., revenue and expense accounts) and dividends.

(ii) Indicate the effect of each transaction (i.e., increase, decrease, or no effect) on the ratio indicated in the question. Please use the following ratio definitions shown below.

(iii) Treat each transaction independently. When determining the effect of the transaction on the Current Ratio, assume that prior to the transaction the ratio is 1, and that the leverage ratio is 0.50. When determining the effect of the transaction on Return on Assets and Return on Equity, assume that prior to the transaction the ratio is 0.10 and 0.20 respectively.

Definition:		**Assume that the ratio value prior to the transaction is:**
Current Ratio:	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	1.00
Leverage Ratio:	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	0.50
ROA:	$\frac{\text{Net Income}}{\text{Average Total Assets}}$	0.10
ROE:	$\frac{\text{Net Income}}{\text{Average Shareholders Equity}}$	0.20

(iv) Ignore taxes.

Question 2. Recording transactions (continued)

The first event is given as an example.

Recognized $8,000 of sales expense, of which $2,500 is paid in cash and the rest is on credit

	ASSETS			LIABILITIES	EQUITY	Mark the effect on Ratio
Transaction	**Cash**	**Accounts Receivable**	**Inventory**	**Accounts Payable**	**Shareholders' Equity**	
(a) (8 points)	(2,500)	(5,500)			(8,000)	**Return on Equity:** Increase No change **<u>Decrease</u>**

Question 2. Recording transactions (continued)

(a) (8 points) Recorded $12,000 in depreciation expense.

(b) (8 points) Provided service to the customer and recognized $20,000 revenue on account.

(c) (8 points) Paid a $12,000 dividend in cash.

(d) (8 points) Received $12,000 from a customer for a payment of accounts receivable.

(e) (8 points) Purchased $10,000 of inventory on account.

	ASSETS			**LIABILITIES**	**EQUITY**	**Mark the effect on Ratio**
Transaction	**Cash**	**Accounts Receivable**	**Inventory**	**Accounts Payable**	**Shareholders' Equity**	
(a) (8 points)	(12,000)				(12,000)	**Return on Assets:** Increase No change **<u>Decrease</u>**
(b) (8 points)		20,000			20,000	**Leverage Ratio:** Increase No change **<u>Decrease</u>**
(c) (8 points)	(12,000)				(12,000)	**Return on Equity:** **<u>Increase</u>** No change Decrease
(d) (8 points)	12,000	(12,000)				**Current Ratio:** Increase **<u>No change</u>** Decrease
(e) (8 points)			10,000	10,000		**Return on Assets:** Increase No change **<u>Decrease</u>**

Calculation of financial statement effects

(a)

$$\frac{100\text{K} - 12\text{K}}{1000\text{K} - 12\text{K}} = 0.0897$$

(b)

$$\frac{50\text{K}}{100\text{K} + 20\text{K}} = 0.4167$$

(c)

$$\frac{20\text{K}}{100\text{K} - 12\text{K}} = 0.2272$$

(d)

$$\frac{100\text{K}}{100\text{K}} = 1.0$$

(e)

$$\frac{100\text{K}}{1000\text{K} + 10\text{K}} = 0.0990$$

Question 4: Ratios (15 points)

For each of the following transactions first indicate the transaction ABC should have recorded and whether each account represents an asset (A), liability (L), or shareholder's equity (SE). Then indicate how each of these accounting errors would affect ABC Inc's return on assets, return on shareholder's equity and debt to equity ratio. That is, after each error, would the firm's ROA, ROE and Leverage ratio be too high, too low, or the same? Consider each of the errors independently.

Assume that ROA and ROE before each error are below one and above 0 (that is, $0 < ROA < 1$ and $0 < ROE < 1$), and that the Leverage ratio before each error is equal to 0.50. Ignore taxes.

For instance, if ABC should have recorded the receipt of $10,000 cash and a related decrease in accounts receivable, the entry should appear as:

Cash (A) $10,000

Accounts Receivable (A) $10,000

A. (5 points) ABC incurs research and development (R&D) expense of $10,000 in the current year. Rather than record an expense, ABC capitalizes $10,000 of R&D as an asset. There are no other entries related to this transaction during the current year. Note that ABC normally pays R&D expenses in cash.

The transaction ABC should have recorded is:

ASSETS				LIABILITIES	EQUITY
Cash	**Accounts Receivable**	**Inventory**	**Accumulated Depreciation**	**Accounts Payable**	**Retained Earnings**
(10,000)					(10,000)

The effect of the error on the ratio is:

ROA:	higher than	lower than	the same
ROE:	higher than	lower than	the same
Leverage:	higher than	lower than	the same

B. (5 points) ABC receives a loan in the amount of $20,000 from the bank. The company mistakenly records the loan as a common stock issuance.

The transaction ABC should have recorded is:

ASSETS				LIABILITIES	EQUITY
Cash	**Accounts Receivable**	**Inventory**	**Accumulated Depreciation**	**Loan**	**Retained Earnings**
20,000				20,000	

The effect of the error on the ratio is:

ROA: higher than lower than the same

ROE: higher than lower than the same

Leverage: higher than lower than the same

C. (5 points) During a physical inventory count at yearend, ABC realizes that 200 units of inventory, costing $20,000, are missing; however, ABC fails to update its accounting records.

The transaction ABC should have recorded is:

ASSETS				LIABILITIES	EQUITY
Cash	**Accounts Receivable**	**Inventory**	**Accumulated Depreciation**	**Loan**	**Retained Earnings**
		(20,000)			(20,000)

The effect of the error on the ratio is:

ROA: higher than lower than the same

ROE: higher than lower than the same

Leverage: higher than lower than the same

Name_______________________________________

Problem	Grade	Points
1		20
2		40
3		25
4		15
Total		100

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