

# Entrepreneurship for Computer Science

15-390 - Spring 2020

## Problem Set 4

**Out: 8<sup>th</sup> of April, 2020**

**Due: 16<sup>th</sup> of April, 2020**

Problem	Points
Balance Sheets	30
Income Statements	20
Stocks & Corporate Metrics	20
Cash Flow	30

**Problem I: Balance Sheet [30 Points]**

Assume the following balance sheet accounts for a widget store, **X, Inc.**, for the year ending December 31, 2017. Furthermore, assume that these accounts are the only entries that can go into **X, Inc.**'s balance sheets.

Item Name	Dollar Amount
Gross fixed assets (e.g. equipment, computers, etc.)	63,403
Inventories	171,300
Long term debt	95,350
Accrued expenses (e.g. utilities, rent, etc.)	13,000
Accumulated depreciation	69,310
Short-term bank loan (notes payable)	48,570
Retained earnings	89,280
Net accounts receivable	105,770
Additional paid-in capital	71,600
Accounts payable	50,830
Common stock (\\$0.20 par)	??
Cash	??

- Assume that the total amount of money raised by **X, Inc.** from the sale of all of its stock through time has been \$750,000. Construct a balance sheet for **X, Inc.** using the above accounts. Find the value of cash that would make the sheet balanced. **(10 points)**
- Assume that **X, Inc.**'s net income for 2017 was \$25,400 and Retained earnings reported on the 2016 annual balance sheet was \$79,880. What was **X, Inc.**'s dividend payment per share in 2017? **(10 points)**
- If **X, Inc.**'s net fixed assets on its 2016 balance sheet was \$184,660 and depreciation on its 2017 income statement was \$10,260, what amount of cash did **X, Inc.** spend on fixed assets in 2017? **(10 points)**

**Problem II: Income Statement [20 Points]**

In 2017, **Y, Inc.** (a hardware retail company) sold 10,000 units of its product at an average price of \$400 per unit. The company reported estimated Returns and Allowances in 2017 of \$200,000. **Y, Inc.** actually purchased 11,000 units of its product from its manufacturer in 2017 at an average cost of \$300 per unit. It began 2017 with 900 units of its product in inventory (carried at an average cost of \$300 per unit). Operating expenses (excluding depreciation) for **Y, Inc.** in 2017 were \$400,000 and depreciation expense was \$100,000. It had \$2,000,000 in debt outstanding throughout all of 2017. This debt carried an average interest rate of 10 percent. Finally, **Y, Inc.**'s tax rate was 40 percent. **Y, Inc.**'s fiscal year runs from January 1 through December 31.

- Given the information above, construct **Y, Inc.**'s income statement. **(10 points)**
- What was **Y, Inc.**'s 2017 ending inventory balance (in both units and in dollars)? **(10 points)**

**Problem III: Stocks & Corporate Metrics [20 Points]**

Z, Inc. has assets of \$200,000, current liabilities of \$25,000, and long-term liabilities of \$70,000. It has 20,000 shares of common stock outstanding.

- Compute Z, Inc.'s book value per share. **(5 points)**
- If there is \$11,000 in earnings available to common stockholders and Z, Inc. has a P/E of 15 times Earnings per Share, what is the current price of the stock? **(5 points)**
- What is the ratio of the current price per share of the stock to the book value per share of the stock? What do you think is the significance of this relationship, specifically for Z, Inc., as well as in general? **(10 points)**

**Problem IV: Cash Flow [30 Points]**

Prepare a statement of cash flow for Q, Inc. Information from the December 31, 2017 and 2016 balance sheets of Q, Inc. are presented below, alongside additional transactions and events that occurred in 2017.

	2017	2016
Cash	30,000	50,000
Accounts receivable	410,000	460,000
Inventory	300,000	320,000
Prepaid expenses (or expenses that have been paid in advance)	20,000	15,000
Long term investments	50,000	25,000
Land	560,000	300,000
Buildings and equipment	2,000,000	1,900,000
Accumulated depreciation	(800,000)	(770,000)
	<b>\$2,570,000</b>	<b>\$2,300,000</b>
Accounts payable	300,000	120,000
Accrued liabilities	40,000	50,000
Bonds payable	500,000	800,000
Long term note payable	150,000	0
Common stock, \$2 par value	200,000	160,000
Additional paid in capital	710,000	550,000
Retained earnings	670,000	620,000
	<b>\$2,570,000</b>	<b>\$2,300,000</b>

Here are some additional information that may be needed about 2017 transactions and events:

- Net income was \$110,000
- Depreciation expense on buildings and equipment was \$60,000
- Sold equipment with a cost of \$50,000 and accumulated depreciation of \$30,000 for cash of \$17,000
- Declared and paid cash dividends of \$60,000
- Issued a \$150,000 long term note payable for buildings and equipment

- Purchased long term investments for \$25,000
- Paid \$300,000 on the bonds payable
- Issued 20,000 shares of \$2 par value common stock for \$20,000
- Purchased land for \$260,000