

**Question 1. True or False (10%)**

Determine whether each statement below is either true or false and briefly explain why.

1.1 Deferred revenues can only be a liability

1.2 Treasury Stock, Discount on Bonds Payable and Allowance for Doubtful Accounts are contra accounts to different types of accounts.

1.3 Repurchase of shares increase EPS (Earnings Per Share).

1.4 Deferred tax can only be a liability.

1.5 Write-offs do not affect total assets.

1.1 TRUE

- Because it reflects the revenue which has not yet been earned and in addition also the services or products that are owed to customers.

1.2 TRUE

- Treasury stock is a contra equity account and reduces the total shareholder's equity on a company's balance sheet, discount on bonds payable is a contra account to bonds payable, and finally allowance for doubtful accounts is a contra asset account since it reduces an amount of an asset.

1.3 TRUE

- A repurchase of shares reduces the numbers of shares outstanding, hence earnings per share (EPS) is increased.

1.4 FALSE

- It can be either an asset or liability: In the case of being an asset it is because it is used to reduce taxable income in the future which refers to deferred tax asset, however it can also be a long-term liability when an obligation is not satisfied within one year or the current operating cycle.

1.5 FALSE

- Writing off does not necessarily decrease the company's total assets on paper, however it removes the original accounts receivable asset from the books. In other words, it will shrink the total amount of accounts receivable will result in less current liabilities and hence a smaller amount of total assets.

**Question 2. (10%)**

**2.1** A bond with semi-annual coupon payments is dated on January 1, 2021, and is issued on that date. The face value of the bond is \$2,000,000, and the market rate of interest is 10% at the time of issuance. The bond will mature in 5 years.

Calculate the issue price of the bond (show all your calculations) and explain what accounts are used in the journal entries if the coupon rate is:

1. 6%
2. 10%
3. 16%

Briefly describe the relationship between the coupon rate and the bond issuance price (No calculations needed).

2.1

A:

1: 6%

$$\begin{aligned} \text{Coupon rate} &= 6\% \\ i &= 10\% \\ n &= 5 \\ \text{Annual payments} &= 2 \\ \text{Face value} &= 2,000,000 \end{aligned}$$

Find present value of the annuity of PV

$$\text{Present val.} = \frac{1 - \left(\frac{10\%}{2}\right)^{10}}{\frac{10\%}{2}} = 7.722$$

Find present value of principal

$$\text{Present value of principal} = \frac{1}{\left(1 + \frac{10\%}{2}\right)^{10}} = 0.613913254$$

Use present value of principal to find face value

$$0.6139 \cdot 2,000,000 = 1,227,862.51$$

Interest payments

$$2,000,000 \left(\frac{6\%}{2}\right) \cdot 7.72173 = 463,304.10$$

$$\begin{aligned} \text{Issue price} &= \text{face val.} + \text{interest payments} \\ 1,227,826.51 + 463,304.10 &= 1,691,130.60 \end{aligned}$$

2: 10%

Rate is same as market rate, hence issue price = face val.

$$\text{Issue price} = 2,000,000$$

3: 16%

Interest payments differ, hence:

$$2,000,000 \left( \frac{16\%}{2} \right) 7.72173 = 1,235,477.59$$

Henceforth the issue price is:

$$1,227,826.51 + 1,235,477.59 = 2,463,304.10$$

B:

When the coupon rate rises the issue price also rises.

**2.2** A bond with semi-annual coupon payments is dated on January 1, 2021, and is issued on that date. The face value of the bond is \$2,000,000, the coupon rate is 10%, and the market rate of interest is 7% at the time of issuance. The bond pays interest semi-annually.

Calculate the issue price of the bond if the bond will mature in (Show all your calculations):

1. 10 years
2. 15 years
3. 20 years

Briefly describe the relationship between the time to maturity and the bond issuance price (No calculations needed).

2.2:

$$\text{Coupon rate} = 10\%$$

$$i = 7\%$$

$$n = 10 \text{ years}, 15 \text{ years}, 20 \text{ years}$$

$$\text{Ann. payments} = 2$$

$$\text{Face value} = 2,000,000$$

$$n \cdot \text{ann. payments} = 20, 30, 40$$

1: 10 years

$$\text{Present Value} = \frac{1 - \left( \frac{7\%}{2} \right)^{-20}}{\frac{7}{2}} = 14.2124$$

$$\text{Present value of principal} = \frac{1}{\left( \frac{1 + 7}{2} \right)^{20}} = 0.5025659$$

Use present value of principal to find face value

$$0.5025659 \cdot 2,000,000 = 1,005,131.77$$

Interest payments:

$$2,000,000 \left( \frac{7\%}{2} \right) 14.2124 = 1,421,240.33$$

Issue price:

$$\text{Face val.} + \text{interest payments} = 1,005,131.77 + 1,421,240.33 = 1,691,130.60$$

2: 15 years

$$\text{Present Value} = \frac{1 - \left(\frac{7\%}{2}\right)^{-30}}{\frac{7\%}{2}} = 18.3921$$

$$\text{Present Value of principal} = \frac{1}{\left(\frac{1 + 7\%}{2}\right)^{30}} = 0,35627841$$

Use present value of principal to compute face value

$$0.35627841 * 2,000,000 = 712,556.82$$

Interest payments:

$$2,000,000 \left(\frac{7\%}{2}\right) 18.3921 = 1.839.204,54$$

Then issue price:

$$712,556.82 + 1,839,204.54$$

3: 20 years

$$\text{Present Value} = \frac{1 - \left(\frac{7\%}{2}\right)^{-40}}{\frac{7\%}{2}} = 21.3551$$

$$\text{Present Value of principal} = \frac{1}{\left(\frac{1 + 7\%}{2}\right)^{40}} = 0.25257247$$

Use present value of principal:

$$0.25257247 \cdot 2,000,000 = 505,144.94$$

Interest payments:

$$2,000,000 \left(\frac{7\%}{2}\right) 21.35507 = 2,135,507.23$$

Issue price:

$$505,144.94 + 2,135,507.23 = 2,640,652.17$$

B:

The issue price becomes higher when the maturity times becomes higher

**Question 3. (25%)**

On January 1, 2018, Nakasaki Inc purchased an equipment for \$100,000. At the time of purchase, the equipment had an estimated residual value of \$15,000. However, the equipment was damaged during transportation and it cost \$5,000 to make the necessary repairs to the equipment. Because of this repair, the estimated life of the equipment increased from three to four years. Government environmental regulations mandate modifications to the equipment costing \$20,000 in order for Nakasaki to be permitted to use the equipment. All of the transactions were made in cash. On 1 June 2021, Nakasaki Inc sold the equipment for \$18,000 in cash.

**3.1** Make the necessary journal entries for the above transactions assuming Nakasaki Inc used the straight-line depreciation method.

**3.2** Make the necessary journal entries for the above transactions assuming Nakasaki Inc used the double-declining depreciation method.

Nakasaki Inc is a government contractor and the government is its only customer. Each month, the government pays \$10,000 in cash for products delivered. In addition to the machine, Nakasaki Inc spends \$3,000 cash on salaries and \$4,000 cash on rent. Corporate tax rates are 30% for each year.

**3.3** Prepare the taxable income reported privately to the tax authorities using the double-declining depreciation method for each calendar year 2018 through 2021.

**3.4** Prepare the net income before tax expense reported publicly in the financial statements using the straight-line depreciation method for each calendar year 2018 through 2021.

**3.5** Make the necessary journal entries related to taxes for each calendar year 2018 through 2021.

3.1:

Required cost:

$$100,000 + 5,000 + 20,000 = 125,000$$

Ann. Depreciation with straight-line:

$$\frac{125,000 - 15,000}{4} = 27,500$$

Date	Debit acc.	Credit acc.	Debit	Credit
jan 01 2018	equipment	cash	125000	125000
dec 31 2018	Depreciation	accumulated depreciation	27500	27500
dec 31 2019	Depreciation	accumulated depreciation	27500	27500
dec 31 2020	Depreciation	accumulated depreciation	27500	27500
may 30 2021	Depreciation	accumulated depreciation	11458	11458
jun 1 2021	Cash	equipment	18000	125000
	acc. Depreciation		93958	
	loss on sale		13042	

3.2

Date	Debit acc.	Credit acc.	Debit	Credit
jan 01 2018	equipment	cash	125000	125000
dec 31 2018	Depreciation	accumulated depreciation	50000	50000
dec 31 2019	Depreciation	accumulated depreciation	30000	30000
dec 31 2020	Depreciation	accumulated depreciation	18000	18000
may 30 2021	Depreciation	accumulated depreciation	4500	4500
jun 1 2021	Cash	equipment	18000	125000
	acc. Depreciation		102500	
	loss on sale		4500	

3.3

year	2018	2019	2020	2021
Sales rev.	120000	120000	120000	120000
expenses	-7000	-7000	-7000	-4000
Depreciation, DDB	-62500	-31250	-15625	-625
taxable income	50500	81750	97375	115375
taxes paid 30%	15150	24525	19212.5	34612.5

3.4

year	2018	2019	2020	2021
Sales rev.	120000	120000	120000	120000
expenses	-7000	-7000	-7000	-4000
Depreciation, DDB	-27500	-27500	-27500	-11458,3
taxable income	85500	85500	85500	104541,7
taxes paid 30%	25650	25650	25650	313

3.5

Date	Accounts	Debit	Credit
YEAR: 2018	cash	120.000,00	
dec-31	sales rev		120.000,00
	saleries expense	3.000,00	
	cash		3.000,00
	rent expense	4000	
	cash		4000
	dep exepsne	27500	
	acc dep		27500
dec-31	tax exepense	25650	
	cash		15150
	deferred tax liability		10500
2019 dec 31	cash	120.000,00	
	sales rev		120.000,00
	saleries expense	3.000,00	
	cash		3.000,00
	rent expense	4000	
	cash		4000
	dep exepsne	27500	
	acc dep		27500
	tax exepense	25650	
	cash		24525
	deferred tax liability		1125
2020 dec 31	cash	120.000,00	
	sales rev		120.000,00
	saleries expense	3.000,00	
	cash		3.000,00
	rent expense	4000	
	cash		4000
	dep exepsne	27500	
	acc dep		27500
	tax exepense	25650	
	cash	3562.5	
2020 dec 31	deferred tax liability		29212.5
2021 dec 31	cash	120.000,00	
	sales rev		120.000,00
	saleries expense	3.000,00	
	cash		3.000,00
	rent expense	4000	
	cash		4000
	dep exepsne	11458.3	
	acc dep		11458.3
	tax expense	31365,5	
2021 dec 31	deferred tax liability	3250	
	cash		34612,5

**Question 4. (40%)**

**4.1** Prepare and present all journal entries for the first quarter of 2021 for **Family Farms Company** ("FFC") associated with the following transactions for the first quarter of 2021. Include adjusting entries. Show your calculations.

Note that the FFC accounts for its bad debts using the allowance method with the net credit sales approach and estimates that 20% of net credit sales are uncollectible.

January 1, the owners contribute capital of \$1,000,000 to start their new firm FFC and receive 10,000 shares.

January 2 the FFC rents a warehouse for six months. The full payment of \$200,000 is paid in cash immediately.

January 3, the FFC purchases 3,000 units of inventory on credit for a total of \$30,000.

January 10, customer A purchases 200 units from FFC for \$3,000 cash.

January 21, customer B purchases 300 units from FFC for \$4,400 on credit.

February 19, customer B pays \$4,400 to FFC.

February 22, customer C purchases 500 units from FFC for \$7,300 on credit.

March 3, FFC declares and pays a cash dividend of \$3 per share.

March 15, the FFC purchases 1,000 units of inventory on credit for a total of \$10,000.

March 24, customer D purchases 400 units from FFC for \$5,700 on credit.

March 30, customer E orders and pays \$200 for 100 units that FFC will ship and deliver to customer E the following month.

**4.2** Prepare and present a trial balance.

**4.3** Prepare and present an income statement for the first quarter of 2021.

**4.4** Prepare and present the balance sheet as of March 31, 2021.

**4.5** Prepare and present the statement of cash flows for the first quarter of 2021. Use the indirect method to present cash flows from operating activities.

**4.6** Assume that FFC paid \$9,000 (instead of \$10,000) on March 15 to purchase 1,000 units of inventory on credit. Discuss what accounting considerations this would create for FFC (No calculations required).



Date	Accounts	Debit	Credit
YEAR: 2021	Cash	1.000.000,00	
jan-01	Common stock		1.000.000,00
jan-02	Rent	200.000,00	
	Cash		200.000,00
jan-03	Inventory	30.000,00	
	Accounts payable		30.000,00
jan-10	Cash	3.000,00	
	Revenues		3.000,00
	Cost of goods sold	2.000,00	
	Inventory		2.000,00
jan-21	Accounts receivable	4.400,00	
	revenues		4.400,00
	Cost of goods sold	3.000,00	
	Inventory		3.000,00
feb-19	Cash	4.400,00	
	Accounts receivable		4.400,00
feb-22	Accounts receivable	7.300,00	
	Revenues		7.300,00
	Cost of goods sold	5.000,00	
	inventory		5.000,00
mar-03	Retained earnings	30.000,00	
	Cash		30.000,00
mar-15	Inventory	10.000,00	
	Accounts payable		10.000,00
mar-24	Accounts receivable	5.700,00	
	Revenues		5.700,00
	Cost of goods sold	4.000,00	
	Inventory		4.000,00
mar-30	Cash	200,00	
	Deferred revenues		200,00
mar-31	Bad debt expense	2.600,00	
	Allowance for doubtful accounts		2.600,00

4.2

Trial balance		
Accounts	Debit	Credit
cash	777.600,00	
Accounts receivable	13.000,00	
Inventory	26.000,00	
Accounts payable		40.000,00
Deferred revenue		200,00
Common stock		1.000.000,00
Retained earnings	30.000,00	
Bad debt expense	2.600,00	
Cost of goods sold	14.000,00	
Revenues		20.400,00
Allowance for doubtful accounts		2600
Prepaid rent	200000	
total	1.063.200,00	1.063.200,00

## 4.3

Income statement	
Revenues	20.400,00
Cost of goods sold	- 14.000,00
Bad debt expense	-2600
rent	-100000
Income	- 96.200,00

They had a total of revenues of 20,400, COGS of 14,000 and bad debt for 2600. Furthermore, their rent for the three months was 100,000 which resulted in a deficit of 96,200

## 4.4

Balance sheet			
Account	2016	Current liabilities	
<b>Current assets:</b>		Accounts payable	40.000,00
Cash	777.600,00	Deferred revenue	200
Accounts receivable	13.000,00		
Inventory	26.000,00		
Prepaid rent	100.000,00	<b>Total current liabilities</b>	
allowance for doubtful accounts	- 2.600,00	Long-term liabilities	
<b>total current assets</b>			
<b>Non-current assets</b>		<b>Total liabilities</b>	
		Stockholders' equity	
		Common stock	1000000
<b>Total long-term assets</b>	<b>0</b>	Retained earnings	- 126.200,00
		<b>Total stockholders' equity</b>	
<b>Total assets</b>	<b>914.000,00</b>	<b>Total liabilities and stockholders' equity</b>	<b>914.000,00</b>

Their total assets and total liabilities and stockholders' equity amounted to 914,000

## 4.5

Cash flow indirect:	
<b>Cash flow from operating activities:</b>	
Net income	3800
Increase in accounts receivable	-13000
Increase in accounts payable	40000
Prepaid rent	-200000
<b>Net cash flow from operating activities:</b>	<b>-169200</b>
<b>Cash flow from financing activities:</b>	
Issuance of capital stock	1000000
Cash dividends paid	-30000
<b>Net cash flow from financing activities:</b>	<b>970000</b>
<b>Net increase in cash</b>	<b>800800</b>

Their total cash flow was 800,800, which is a results from a negative cash flow from operating activities of 169,200, however their cash flow from financing activities amounted to 970,000 which finally resulted in a net increase in cash of 800,800.

## 4.6

If they were to purchase 1000 units of a total of 9,000\$ instead of \$10,000 it would lead to a cost per unit which is less than their previous purchase. Before this change the cost per unit of the two purchases were the same, and in this situation they would differ. Moreover, they would need to think of their inventory costing method; in this regard they can either choose the weighted average, LIFO or FIFO. In addition, they would have to choose the method which is most suitable to them.

**Question 5. (5%)**

A company has excess cash and considers to purchase stock in (i) its own equity or (ii) in a different company's equity. What are the journal entries to record this purchase? What would be the effect on the financial statements? Is any additional information needed to answer these questions? No calculations required.

(i) Its own equity

DR: Treasury stock

CR: Cash

(ii) Different company

DR: Stock purchase

CR: Cash

Effect on financial statement:

When buying stocks from one's own company it would be a financing operation, whereas when purchasing stocks from another firm it would be an investing operation. Whether more information is required could be resourceful, since the company could have already purchased a lot of its own shares, henceforth it would be of necessity to the company to buy stocks in other companies, since the price per share would lead to an increase in the price per share.

**Question 6. (10%)**

Please refer to the appendix with **Starbucks 2020 annual report** (also posted under Lecture 10 on Canvas). The main financial statements are on page 47-51. Note that (i) the 2020 fiscal year ends on September 27, 2020, (ii) the 2019 fiscal year ends on September 29, 2019, and (iii) the 2018 fiscal year ends on September 30, 2018.

**6.1** Discuss whether it may lead to more or less comparability that Starbucks fiscal year does not end on the same calendar date each year? From the material covered in this course, what other companies has fiscal year end dates that vary over time?

**6.2** What is debt-to-equity ratio for 2020 and 2019? Show your calculations. What accounts are the main reason for variation in the debt to equity ratio between the two years?

**6.3** Calculate Return on common stockholders' equity (ROE) for 2020? Show your calculations.

**6.4** What is Return on assets ratio (ROA) for 2020? Show your calculations.

**6.5** How different is Return on assets ratio (ROA) for 2020 if the denominator uses (i) average total assets or instead (ii) total assets at the beginning of the 2020 fiscal year? Show your calculations. What accounts are the main reason for this difference?

## 6.1

It will lead to less comparability that Starbucks fiscal years does not end on the same calendar date each year. Since the quarters of the different balances and income statements will not be on the same date. In class we have seen Panera bread which has also differed in terms of its calendar dates.

## 6.2

$$\begin{aligned} & \text{Total liabilities} && 37,173.9 \\ \text{For 2019, Debt to equity ratio} &= \frac{\text{Total liabilities}}{\text{Total stockholder's equity}} = \frac{37,173.9}{-7,805.1} = -4.763 \\ & \text{Total liabilities} && 25,450.6 \\ \text{For 2020, Debt to equity ratio} &= \frac{\text{Total liabilities}}{\text{Total stockholder's equity}} = \frac{25,450.6}{-6,232.2} = -4.084 \end{aligned}$$

## 6.3

$$\begin{aligned} \text{Return on equity} &= \frac{\text{Net income} - \text{Preferred dividends}}{\text{Average common stockholder's equity}} \\ \text{Average common stockholders' equity} &= \frac{1169.5 - 6232.2 - 7805.1}{-7,018.65} = \frac{924.7}{-7,018.65} = 0.132 \end{aligned}$$

## 6.4

Return on assets ratio

$$ROA = \frac{\text{Net income} + \text{Interest expense, net of tax}}{\text{Average total assets}}$$

Find percentage of net tax

$$\text{Income} \frac{\text{taxes}}{\text{income before taxes}} = \frac{239.7}{1164.4} = 21\%$$

Avg. total assets

$$\begin{aligned} & \frac{19,219.6 + 29,374.5}{2} = 24,297.05 \\ ROA &= \frac{924.7 + 437, 21\%}{24,297.05} = 5.23\% \end{aligned}$$

## 6.5

Average:

$$ROA = \frac{924.7 + 437, 21\%}{24,297.05} = 5.23\%$$

Total assets:

$$ROA = \frac{924.7 + 437, 21\%}{29,374.05} = 4.33\%$$

The main difference is that they had less assets in the previous year which made for an average of total assets to become less, moreover in the current year they had a higher amount of total assets decreasing the return on assets.