AAE 320 Fall 2021 **Exam #2** **Name:** _______KEY_____________

1) (10 pts. total) Below is a simplified farm Balance Sheet.

a) (2 pts.) Use the information given and your knowledge of the relationships among Balance Sheet entries to fill in the **four** missing cells and then answer the questions below.

BALANCE SHEET	**1/1/2021**	**1/1/2020**		**1/1/2021**	**1/1/2020**
Current Assets	350,000	380,000	Current Liabilities	280,000	300,000
Non-Current Assets	2,200,000	2,100,000	Non-Current Liabilities	600,000	500,000
			Total Liabilities	880,000	800,000
			Equity	1,670,000	1,680,000
Total Assets	2,550,000	2,480,000	Total Liabilities & Equity	2,550,000	2,480,000

b) (2 pts.) Based on this Balance Sheet, what is the Current Ratio on 1/1/**2021**?

CR = current assets/current liabilities = 350,000 / 280,000 = 1.25

c) (2 pts.) Based on this Balance Sheet, what is the Debt to Asset Ratio on 1/1/**2021**?

DtoA = total liabilities/total assets = 880,000 / 2,550,000 = 0.345

d) (4 pts.) This is for a different farm than above. Suppose you sell some of corn grain for $100,000, the value on your market basis balance sheet below. You then spend $30,000 to buy a tractor and $20,000 to pay off short-term debt for the farm. The column **Before** in the balance sheet below gives the financial data before you made these changes. For each entry in the **Before** column, write in the **After** column the new value that applies after you complete these changes.

BALANCE SHEET	**Before**	**After**		**Before**	**After**
Current Assets	500,000	450,000	Current Liabilities	300,000	280,000
Non-Current Assets	1,000,000	1,030,000	Non-Current Liabilities	500,000	500,000
			Total Liabilities	800,000	780,000
			Equity	700,000	700,000
Total Assets	1,500,000	1,480,000	Total Liabilities & Equity	1,500,000	1,480,000

2) (15 pts. total) Below is a simplified farm Income Statement.
a) (3 pts.) Use the given information to fill in the **three** missing cells.

INCOME STATEMENT		1/1/2020 to 1/1/2021
Crop Sales		500,000
Livestock/Dairy Sales		400,000
	Total Revenue	900,000
Operating Costs		750,000
Interest Expenses		80,000
	Total Costs	830,000
	Net Farm Income from Operations	70,000
Unpaid Labor and Management		80,000
	Net Farm Income	-10,000

Use the Income Statement above and the **FIRST** Balance Sheet in Question 1 to answer the questions below. Show how you calculate your answers for potential partial credit.

b) (3 pts.) What is this farm's Return on Assets? What is this farm's Rate of Return on Assets?

ROA = NFIfO + Interest – UnpaidLabrMangmt = 70,000 + 80,000 – 80,000 = **70,000**

ROROA = ROA/Avg Assets = 70,000 / ½(2,550,000 + 2,480,000) = **2.8%**

c) (3 pts.) What is this farm's Return on Equity? What is this farm's Rate of Return on Equity?

ROE = ROA – Interest = 70,000 – 80,000 = **–10,000**

ROROE = ROE / Avg Equity = -10,000 / ½(1,670,000 + 1,680,000) = **–0.6%**

d) (3 pts.) What is this farm's Operating Profit Margin Ratio (i.e. Profit Margin)?

*Profit margin = ROA / Total revenue = 70,000 / 900,000 = **7.8%***

e) (3 pts) The income statement above shows a net farm income loss of $10,000, which includes paying $80,000 to the owner/manager for unpaid labor & management. Briefly explain how the farm can lose money and the farmer still pay himself/herself $80,000. Where does this $80,000 come from in terms of the farm balance sheet?

In the end, paying yourself more than the business earns (net farm income from operations) requires **decreasing equity**, in this case by $10,000.

3) (17 pts. total) Briefly and concisely answer each question below.
a) (1 pts.) Do most US farms use cash or accrual accounting for filing taxes?

Cash Accounting

b) (2 pts.) Suppose you planted and harvested soybeans in 2020, but sold them in 2021. If you claim this income on your 2021 taxes, is this cash accounting or accrual accounting?

Cash Accounting

c) (2 pts.) Suppose you buy seed in November 2020 and use it to plant crops in May 2021. If you did accrual accounting, when would you deduct this cost, on your 2020 or 2021 taxes?

2021 Taxes

d) Suppose you have been a sole proprietor for several years. A potential investor wants to evaluate your business skills before investing a lot of money to expand your farm as an investor. She wants to see your balance sheets and income statements from the last few years.
i) **(2 pts.)** Briefly explain what a cost basis balance sheet would show to an investor.

Cost basis balance sheet would show your skill as a manager since equity would only increase via retained earnings.

ii) **(2 pts.)** Briefly explain what a market basis balance sheet would show an investor.

Market basis balance sheet gains would be a mix of your skills as manager (gains via retained earnings) and land value changes (gains as an investor)

iii) **(2 pts.)** Briefly explain what an accrual adjusted income statement would show an investor.

Accrual accounting would be the most accurate measure of your managerial ability to generate income each year.

iv) **(2 pts.)** Briefly explain what cash accounting income statement would show an investor.

Cash accounting results would show your skill in using cash accounting to manage your taxable income to reduce your taxes.

e) (2 pts.) Suppose your commercial grain farm has a current ratio of 10.10 (1010%) in December. Explain why this is or is not a problem.

This is a very high current ratio, but makes sense from just having harvested a large amount of grain, or the cash from just having sold the grain, on the balance sheet as a current asset.

f) (2 pts.) Suppose your dairy farm has a debt to asset ratio of 0.90 (90%). Explain why this is or is not a problem.

This farm is close to being insolvent. Lenders would be very reluctant to offer any more credit. The farm would likely need to sell assets to pay down debt before getting any more credit.

4) (4 pts. total) You buy a truck to haul grain for $50,000 with a useful life of 4 years.
a) (2 pts.) Fill in the table below using Straight Line Depreciation for this truck assuming a $10,000 salvage value. Show your work.

Year	Depreciation During Year	Value at Year End
1	10,000	40,000
2	10,000	30,000
3	10,000	20,000
4	10,000	10,000

Depreciation = (50,000 – 10,000)/4 = 10,000 each year
$50,000 – $10,000 = $40,000
$40,000 – $40,000 = $30,000
$30,000 – $10,000 = $20,000
$20,000 – $10,000 = $10,000

b) (2 pts.) Fill in the table below using 200% Declining Balance Depreciation for this truck for ***years 1 and 2 only***. IGNORE SALVAGE VALUE. Show your work.

Year	Depreciation During Year	Value at Year End
1	25,000	25,000
2	12,500	12,500
3	xxxx	xxxx
4	xxxx	xxxx

Depreciation Rate = 200% x ¼ = 50%

$50,000 x 50% = $25,000
$50,000 – $25,000 = $25,000
$25,000 x 50% = $12,500
$25,000 – $12,500 = $12,500

5) (8 pts.) Suppose that in October of 2020 you paid $6,000 for an awesome milk cow and have been and will be depreciating it for tax purposes using the tax table below.
a) (2 pts.) Enter the depreciation claimed in 2020 and that will be claimed 2021 in the table.

Year	Calendar Year	Depreciation Rate	Depreciation Claimed
1	2020	10.00%	$6,000 x 10% = $600
2	2021	30.00%	$6,000 x 30% = $1,800
3	2022	25.80%	
4	2023	13.68%	
5	2024	10.94%	
6	2025	9.58%	

b) (2 pts.) What will be your tax basis in the cow at the end of 2021?

Tax Basis $6,000 – $600 – $1,800 = **$3,600**

c) (2 pts.) If you sold the cow on December 31, 2021 for $4,000, how much gain would you report on your tax return?

Gain = Sales Price – Tax Basis = 4,000 – 3,600 = **$400**

d) (2 pts.) For tax purposes, cows are breeding livestock. Consider ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

Gains from sale of breeding livestock is subject to ***Capital Gains*** *taxes*

6) (8 pts.) Suppose in December 2020 you expected $100,000 in taxable income and so you bought a tractor for $100,000 and chose the Section 179 election for depreciation of the tractor.
a) (2 pts.) Briefly explain how this affected your 2020 ordinary income and self-employment taxes.

Fully depreciating the tractor allows you to reduce your taxable income by $100,000, and so you avoid paying ordinary income taxes and self-employment taxes on this $100,000.

b) (2 pts.) What was your income tax basis in the tractor at the end of 2020?

Because it was fully depreciated, your basis is ***$0*** *(i.e., 100,000 – 100,000 = 0)*

c) (2 pts.) If you sold the tractor in November of 2021 for $60,000, how much gain or loss would you report on your 2021 tax return?

Gain = Sale Price – Basis = 60,000 – 0 = ***$60,000***

d) (2 pts.) Considering ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

This gain is depreciation recapture and is subject only to ***Ordinary Income*** *tax*

7) (22 pts. total) Use the information provided to give short answers to the following questions. Jenn and Paul own a farm, with all assets owned as marital property under Wisconsin's marital property law. Among their assets is corn worth $300,000 with a $0 income tax basis because they raised it and already deducted all of their production costs.

a) **(2 pts.)** If Jenn and Paul sold the corn for $300,000 to Abby, how much gain would they have to report as a result of the sale?

Gain = Sale Price – Basis = 500,000 – 0 = ***$300,000***

b) **(2 pts.)** Considering ordinary income tax, self-employment tax, and capital gains tax, which one or ones is this gain subject to?

This gain would be subject to both ***Ordinary Income*** *tax and* ***Self-Employment*** *tax*

c) **(2 pts.)** If instead Jenn and Paul gave the corn to Abby. Assuming this is their first major gift to Abby, based on current tax laws, would Jenn and Paul have to pay gift taxes?

No. *Both Jenn and Paul could give $15,000 each with no gift tax for their annual exemption, and then they could each use part of their life-time exclusions*

d) **(2 pts.)** If Abby sold the corn after they gave it to her, how much gain would she have to report?

Basis transfers with the gift, so her basis is $0. So Gain = Sale Price – Basis = ***$300,000***

e) **(2 pts.)** If instead Jenn and Paul contribute the corn to a farm organized as a C corporation in exchange for an ownership interest in the corporation. If the corporation sells the corn for $300,000, how much gain or loss would the corporation realize?

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Basis transfers and so still a $0 basis, so Gain = Sale Price – Basis = ***$300,000***

i) **(2 pts.)** Would the C corporation pay income tax on this gain?

Yes. C Corporations pay taxes on gain. They are not pass-through entities.

ii) **(2 pts.)** If instead of selling the corn, the C corporation gives the corn back to Jenn and Paul. Would the corporation and/or Jenn and Paul pay income tax due to this transfer?

Transfer back out of C corporation would trigger recognition of gain for ***both*** *the* ***C corporation*** *and* ***Jenn and Paul****, so* ***both*** *would pay income taxes.*

f) **(2 pts.)** If instead Jenn and Paul contribute the corn to a farm organized as an LLC in exchange for an ownership interest in the LLC and then the LLC sells the corn for $300,000, how much gain would the LLC realize?

Basis transfers and so still a $0 basis, so Gain = Sale Price – Basis = ***$300,000***

i) **(2 pts.)** Would the LLC pay income tax on this gain or loss?

No, *LLCs are pass-through entities and only the shareholders would pay taxes*

ii) **(2 pts.)** If instead of selling the corn, the LLC returns the corn back to Jenn and Paul. Would the LLC and/or Jenn and Paul have to pay income tax as a result of this transfer?

Transfer back out of LLC would not trigger recognition of gain, ***No One*** *would pay taxes due to this transfer.*

g) **(2 pts.)** Sadly, before they do any of these options, Jenn dies. Her will gives her interest in the corn to Paul. How much gain would Paul have to report if he sold the corn for $300,000?

The basis is updated to the fair market value at the date of death. Because it's jointly owned as marital property (Wisconsin is a common property state), that means the basis for all the corn becomes $300,000, so Gain = Sale Price – Basis = 300,000 – 300,000 = ***$0***

8) (9 pts. total) Provide short answers to each question below.

a) (3 pts.) Which business entities discussed in class must file or register with the state to be legally established as a business?

C Corporations, S Corporations, and LLCs
In many states limited liability partnerships do as well, but that is not required answer here

b) (3 pts.) Which business entities discussed in class do not pay taxes on their income, but pass the income on to the owners who pay taxes?

Pass through entities include Sole Proprietors, Partnerships (both general and limited), S Corporations and LLC. Only C corporations are not a pass-through entity.

c) (3 pts.) If you own a farm organized as an S-corporation and your co-owner buys a tractor for the farm on credit, could the lender seize your personal assets to pay off this debt? Briefly explain why/why not.

No, *the shareholders of a corporation (both C and S) are not personally liable for the corporation debts. However, sometimes creditors require shareholders of small corporations to personally sign in order to also use personal assets as collateral.*

9) (3 pts.) Put an "X" in a column to indicate where each would appear on a farm balance sheet.

Item	Current Asset	Non-Current Asset	Current Liability	Non-Current Liability
Truck for hauling grain		**X**		
Mortgage payment due next month			**X**	
Rent already paid to you for land	**X**			

10) (4 pts.) True or False? Mark your answer based on material discussed in class.

a) T___ F_**X** US farmers are allowed to depreciate land they buy to reduce taxes.

b) T_**X**_ F___ Small farms as a group own a lot of the ag land in the US, but produce a small amount of ag output and often have other income sources.

c) T_**X**_ F___ Inelasticity in farmer response to prices cause agricultural commodity prices and farm income to vary a lot.

d) T_**X**__ F___ The Dairy Carrie blog noted how farmers wanted time off like everyone else and so to be able to pay employees, they often need to get bigger.