AAE 320 Fall 2022 **Exam #2** **Name: KEY**

1) (6 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	1/1/2022	1/1/2021		1/1/2022	1/1/2021
Current Assets	400,000	410,0000	Current Liabilities	270,000	290,000
Non-Current Assets	2,300,000	2,000,000	Non-Current Liabilities	760,000	710,000
			Total Liabilities	1,030,000	1,000,000
			Equity	1,670,000	1,410,000
Total Assets	2,700,000	2,410,000	Total Liabilities & Equity	2,700,000	2,410,000

b) (2 pts.) Based on this Balance Sheet, what is the Current Ratio on 1/1/**2022**?

CR = current assets/current liabilities = 400,000 / 270,000 = 1.48

c) (2 pts.) Based on this Balance Sheet, what is the Debt to Asset Ratio on 1/1/**2022**?

DtoA = total liabilities/total assets = 1,030,000 / 2,700,000 = 0.381

2) (19 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	1/1/2021 to 1/1/2022
Crop Sales	600,000
Livestock/Dairy Sales	500,000
Total Revenue	1,100,000
Operating Costs	710,000
Interest Expenses	50,000
Total Costs	760,000
Net Farm Income from Operations	340,000
Unpaid Labor and Management	80,000
Net Farm Income	260,000

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

b) (4 pts.) What is this farm's Return on Assets? What is this farm's Rate of Return on Assets?

ROA = NFIfO + Interest – UnpaidLabrMangmt = 340,000 + 50,000 – 80,000 = **310,000**

ROROA = ROA/Avg Assets = 310,000 / ½(2,700,000 + 2,410,000) = **12.1%**

c) (4 pts.) What is this farm's Return on Equity? What is this farm's Rate of Return on Equity?

ROE = ROA – Interest = 310,000 – 50,000 = **260,000**

ROROE = ROE / Avg Equity = 260,000 / ½(1,670,000 + 1,410,000) = **16.9%**

d) (4 pts.) What is this farm's Operating Profit Margin Ratio (i.e. Profit Margin)?

*Profit margin = ROA / Total revenue = 310,000 / 1,100,000 = **28.2%***

e) (4 pts) The income statement above shows net farm income of $260,000. Where does this $260,000 go in terms of the farm balance sheet?

The retained earnings will be embodied as either current or non-current assets, but in the end, this money will appear as an increase in equity for the owner. Hence the equity increases by $260,000, from $2,410,000 to $2,700,000.

3) (4 pts.) This is for a different farm. Suppose you sell some land for $100,000 (the value on your market basis balance sheet below) and put the money into your farm checking account. You then use the money to pay off $60,000 of the farm's long-term debt. The column **Before** in the balance sheet below gives the financial data before you made these transactions. For each entry in the **Before** column, write in the **After** column the new value that applies after you complete these transactions.

BALANCE SHEET	Before	After		Before	After
Current Assets	500,000	$540,000	Current Liabilities	400,000	$400,000
Non-Current Assets	1,500,000	$1,400,000	Non-Current Liabilities	900,000	$840,000
			Total Liabilities	1,300,000	$1,240,000
			Equity	700,000	$700,000
Total Assets	2,000,000	$1,940,000	Total Liabilities & Equity	2,000,000	$1,940,000

4) Briefly and concisely answer each question below.
a) (2 pts.) Suppose you harvested corn in November 2021 and sold it in March 2022. If you did cash accounting for taxes, when would you claim this income, on your 2021 or 2022 taxes?

*On your **2022** taxes, the year the transaction occurred*

b) (2 pts.) Suppose you bought fertilizer in 2021 and then used it in 2022 for your corn crop. If you claim this cost on your 2021 taxes, is this cash accounting or accrual accounting?

*This is **cash accounting**, you account for it the year the transaction occurred*

5) Suppose you bought farmland for $3,000/acre in 2010 and it is now worth $5,000/acre.
a) (3 pts.) Which value would a cost basis balance sheet use for the land? Based on class discussion, give one reason why a farmer might want to use a cost basis balance sheet?

$3,000 per acre, the original cost of the asset.

A cost basis balance sheet would be useful to evaluate your skill as a manager since equity would only increase via retained earnings.

b) (3 pts.) Which value would a market basis balance sheet use for the land? Based on class discussion, give one reason why a farmer might want to use a market basis balance sheet?

$5,000 per acre, the current value of the asset.

A market basis balance sheet would be useful for estimating the impact of gains from land value changes (gains as an investor) and separating them from gains due to retained earnings. Lenders would also find it useful for determining loan collateral.

c) (3 pts.) Explain why it is not unusual or a sign of a serious financial problem if a cash grain farm has a high current ratio (say 5.0 or 500%) in December.

This is a very high current ratio, but makes sense from just having harvested a large amount of grain and forage, or the cash from just having sold the grain, on the balance sheet as a current asset. As the season progresses, they will feed the grain and forage or sell some and use the cash to pay down debts or buy longer-term (non-current assets), which will lower the current ratio.

d) (3 pts.) Explain why it is not unusual or a sign of a serious financial problem if a dairy farm has a low current ratio (say 1.5 or 150%).

Dairy farms have continual income streams (monthly payments). Thus, though their current ratio may be lower than for other types of farms, they do not need much cash on hand (a high current ratio), as there is a milk check each month to use for cash/liquidity.

6) (6 pts. total) You buy a combine to harvest grain for $300,000 with a useful life of 4 years.
a) (2 pts.) Fill in the table below using Straight Line Depreciation for this combine assuming a $100,000 salvage value. Show your work.

Year	Depreciation During Year	Value at Year End
1	*50,000*	*250,000*
2	*50,000*	*200,000*
3	*50,000*	*150,000*
4	*50,000*	*100,000*

Depreciation = (300,000 – 100,000)/4
= 50,000 each year
$300,000 – $50,000 = $250,000
$250,000 – $50,000 = $200,000
$200,000 – $50,000 = $150,000
$150,000 – $50,000 = $100,000

b) (4 pts.) Fill in the table below using 200% Declining Balance Depreciation for this combine for ***years 1 and 2 only***. IGNORE SALVAGE VALUE. Show your work.

Year	Depreciation During Year	Value at Year End
1	*150,000*	*150,000*
2	*75,000*	*75,000*
3	xxxx	xxxx
4	xxxx	xxxx

Depreciation Rate = 200% x ¼ = 50%

$300,000 x 50% = $150,000
$300,000 – $150,000 = $150,000
$150,000 x 50% = $75,000
$150,000 – $75,000 = $75,000

7) (8 pts.) Suppose that in November of 2021 you paid $20,000 for a used truck for hauling grain and have been and will be depreciating it for tax purposes using the tax table below.
a) (2 pts.) Enter the depreciation claimed in 2021 and that will be claimed 2022 in the table.

Year	Calendar Year	Depreciation Rate	Depreciation Claimed
1	2021	5.00%	*$20,000 x 5% = $1,000*
2	2022	35.00%	*$20,000 x 35% = $7,000*
3	2023	25.80%	
4	2024	13.68%	
5	2025	10.94%	
6	2026	9.58%	

b) (2 pts.) What will be your tax basis in the truck at the end of 2022?

Tax Basis $20,000 – $1,000 – $7,000 = ***$12,000***

c) (2 pts.) If you sold the truck on December 31, 2022 for $15,000, how much gain (depreciation recapture) would you report on your tax return?

Gain = Sales Price – Tax Basis = $15,000 – $12,000 = ***$3,000***

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

Gains from depreciation recapture is subject to ***Ordinary Income Tax***

8) Suppose a farmer only grows corn and in 2022 reported $900,000 of costs on their schedule F for growing the corn and sold $1,000,000 of corn in 2022.
a) (2 pts.) How much gain would this farmer report on their 2022 tax forms for this sale?

*Gain = $1,000,000 – $900,000 = **$100,000***

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

*Gain is subject to **Ordinary Income Tax and to Self-Employment Tax***

9) Suppose a farmer bought land for $500,000 in 2010 and then sold it for $1,500,000 in 2022.
a) (2 pts.) How much gain would this farmer report on their 2022 tax forms for this sale?

*Gain = $1,500,000 – $500,000 = **$1,000,000***

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

*Gain is subject to **Capital Gains Tax***

10) Use this information to give short answers to the following questions. Homer and Marge own a farm, with all assets owned as marital property under Wisconsin's marital property law. Among their assets is land worth $900,000 with a $100,000 income tax basis.

a) (2 pts.) Suppose Homer and Marge gave the land to Bart. If this is their first major gift to Bart, based on current tax laws, how much gift taxes would Homer and Marge have to pay?

None, this amount would be well under the lifetime exclusion limit.

b) (2 pts.) If Bart sold the land after they gave it to him, how much gain would he have?

The basis transfers with the gift, so
*Gain = Sales Price – Tax Basis = $900,000 – $100,000 = **$800,000***

c) (2 pts.) Sadly, before Homer and Marge do any of this, Homer dies and his will gives Marge the land. How much gain would Marge have to report if she sold the land for $900,000?

*The basis updates to the fair market value on the date of Homer's death, so the sales price equals the tax basis and so the gain is **$0** or **None**.*

11) Suppose you and your sister decide to farm together. You manage the crops and livestock together, splitting the costs and earnings equally. You call yourselves Sisterhood Farms.
a) (2 pts.) You do not do file any official paperwork with the state or federal government, you just start farming together. Is this legal? Do you have to register with the state?

This is legal, you are a partnership and do not need to register with the state's department of finical institutions to conduct business.

b) (2 pts.) What sort of business entity would this be for tax and liability purposes?

This would be a general partnership, with both partners actively participating in the decision making.

12) You own a farm with your sister that is organized as an LLC. Among its assets is land worth $500,000 that has a $100,000 income tax basis.

a) (2 pts.) Suppose your sister buys a new combine harvester for $500,000 on credit for the farm. If the LLC cannot pay the loan payments, could the lender seize your personal assets (your house, retirement accounts) to pay off this debt?

__No__, the LLC give the owners limited liability. Realistically, most creditors know this about LLCs and would have the owners sign the promissory note for the LLC, and then sign again as personally, so that your personal assets could also be seized if needed.

b) (2 pts.) Suppose you end the LLC and you each contribute your ownership interests in that LLC to separate LLCs, each with your own children. Would this transfer trigger recognition of the gain in land value for tax purposes?

__No__, you may remove assets from an LLC and not trigger recognition of the gain.

13) You own a farm with your sister that is organized as an S-corporation. Its only assets are land worth $500,000 that has a $100,000 income tax basis.

c) (2 pts.) Suppose your sister buys a new combine harvester for $500,000 on credit for the farm. If the farm cannot pay the loan payments, could the lender seize your personal assets (your house, retirement accounts) to pay off this debt?

__No__, the corporation give the owners limited liability. Realistically, most creditors know this about corporations and would have the owners sign the promissory note for the S-corp, and then sign again personally, so that your personal assets could also be seized if needed.

d) (2 pts.) Suppose you end the S-corporation and you and your sister both contribute your ownership interests in the land to an LLC that you own together. Would this transfer trigger recognition of the gain in land value for tax purposes?

__Yes__, when you remove assets from an S-corporation, you trigger recognition of the gain.

14) (5 pts.) Put an "X" in a column to indicate which case or cases apply to each entity.

Business Entity	Entity pays taxes on income	Entity passes income to owners who pay taxes	Entity passes income to lenders who pay taxes
C-corporation	X		
S-corporation		X	
Limited Liability Company		X	
General Partnership		X	
Partnership with limited partners		X	

15) (5 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
Corn stored on the farm	X			
Fuel bill due at the end of the month			X	
Tractor you bought on credit		X		
Payment for tractor due by year end			X	
Long-term principle owed on tractor				X

16) (5 pts.) True or False? Mark your answer <u>based on material discussed in class</u>.

a) T___ F_X_ Farmers can use Section 179 to depreciate land to reduce capital gain 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 most have other income sources.

c) T_X_ F___ Most farms in the US use cash accounting for tax purposes.

d) T_X_ F___ The Dairy Carrie blog noted how your farm has to get bigger if you want to farm with your adult children, the farm has to support two households.

e) T_X_ F___ On average, larger farms have higher profit margins than smaller farms, but lots of variation exists, so some large farms have low profit margins.