Spring 2023 Name:

Corporate Finance: Final Exam

Answer all questions and show necessary work. Please be brief. This is an open books, open notes exam.

1. Litnik Inc. is a highly indebted firm that operates in steel and mining; it gets 60% of its value from mining and 40% from steel. The firm is fairly valued at the moment and has a beta (levered) of 3.60; it has 40 million shares outstanding trading at $10/share, and $1.6 billion in debt. The firm is considering **selling its steel business for fair value, which has an unlevered beta of 1.20, and using the cash from the sale to retire debt**. Estimate the levered beta for Litnik Inc., after this transaction. (The marginal tax rate is 25%) (3 points)

2. Aldo Inc. is a German entertainment business that is considering expanding into the publishing business in Turkey, and you have the following information:

	German Company	Turkish project
Business	Entertainment	Publishing
Currency	Euro	Lira
Riskfree rate	2.00%	12.00%
Unlevered beta	1.10	0.75
ERP	6.00%	11.00%
Marginal tax rate	30.00%	20.00%
Debt to capital ratio	40.00%	
Default spread	3.00%	

Estimate the cost of capital, in Euros, for the Turkish publishing project, assuming that Aldo borrows money in Turkey for the project, but uses the same debt to capital ratio and faces the same default spread that it currently has in Germany. (3 points)

3. Zita's Pizzeria is a well-regarded Italian restaurant that is considering plans to introduce a frozen-food entrée, for sale in a grocery stores.
    - It will require an initial investment of $5 million, that will be depreciated straight line down to a salvage value of zero.
    - The entrée is expected to generate $160,000 in after-tax operating income each year for the next five years.
    - The sales of the frozen food entrée is expected to increase the after-tax operating income at the restaurant by $100,000 each year for the next five years
    - The cost of capital is 12% for the restaurant business and 8% for the food processing business.

Estimate the NPV of this investment. (4 points)

4. You work for a small pharmaceutical company that has come up an innovative, patented treatment for bed sores, and you are considering either licensing it to a pharmaceutical company that will share 20% of revenues (expected to be $175 million a year) with you, for the next five years, or to the US government that will pay you a guaranteed licensing fee of $20 million a year, for the next eight years. (All numbers are in $ millions and the marginal tax rate is 25%.)

	Revenue-sharing Pharma	US Government
Number of years	5.00	8.00
Initial cost in getting product ready	-$80.00	-$60.00
Expected License revenues/year	$35.00	$20.00

If the initial cost is depreciable, straight line, over the project lifetime, the riskfree rate is 3% and the cost of capital for pharmaceutical companies is 9%, which is the better choice for you? (You can assume that both agreements are renewable, when they expire, at the same terms that they are offering today.) (3 points)

5. Garibaldi Inc. is a mature chemical company, with the following characteristics for its current cost of capital:

Cost of equity	Cost of debt (pre-tax)	Cost of debt (after-tax)	Debt to capital ratio	Cost of capital
8.52%	4.00%	2.40%	20.00%	7.30%

Estimate the effects of doubling the debt to capital ratio of Garibaldi Inc., which you believe will triple the company's default spread, on the cost of capital (The riskfree rate is 3% and the equity risk premium is 6%) (3 points)

6. Calderon Inc. is a publicly traded company, with 100 million shares outstanding, trading at $18/share, and $900 million in debt outstanding. The company is considering borrowing $900 million and buying back shares at $21/share, which is a rational price, assuming no growth in perpetuity in savings from a lower cost of capital. If the cost of capital after the buyback is 7.50%, estimate the cost of capital before the buyback. (Rational price = Every shareholder, selling or not selling back, gets an equal share of the increase in value. (3 points)

7. Middle State Utilities is a power utility that pays significant dividends each year, as an annual dividend (rather than in quarterly dividends). The stock price is trading at $25, cum-dividend, and has announced a dividend per share of $2.00. Both dividends and short term (held for less than one year) capital gains are taxed at 30% a year, but long-term capital gains are tax exempt. If the ex-dividend stock price is $23.19, estimate the proportion of capital gains, for the typical investor in this stock, that are long term. (3 points)

8. Nikita Inc. is a small publicly traded company that has never paid a dividend, partly because it has never made money. You have been given the following information on the company:

	Most recent year	*1*	*2*	*3*
Revenues (in $ millions)	$500.00	$1,000	$1,200	$1,500
Net margin	-10.00%	-5.00%	2.00%	10.00%
Depreciation (in $ millions)	$150.00	Grows at 10% a year		
Cap Ex (in $ million)	$200.00	Grows at 5% a year		
Non-cash Working capital (as % of revenues)	10.00%	10.00%	8.00%	6.00%

The company currently has a cash balance of $200 million, and would like to have a cash balance of $125 million at the end of year 3. How much can Nikita afford to pay in dividends over the next three years? (4 points)

9. Glynda Inc. is a publicly traded firm that generated $120 million in after-tax operating income; it started the year with book value of equity of $750 million, book value of debt of $400 million and a cash balance of $150 million. You have been given the expected growth rate in operating income, for the next three years:

	1	2	3
Growth rate in after-tax operating income	12.00%	8.00%	4.00%

The firm is expected to continue earning its current return on invested capital in perpetuity, but the expected growth rate is expected to drop after year 3 to 2%. If the cost of capital is 10% for the next 3 years and 8% thereafter, **estimate the value of the equity per share today, if there are 80 million shares outstanding.** (4 points)