Spring 2025 Name:

Final Exam: Corporate Finance

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

1. You run a fitness company that makes exercise equipment, and you currently are all equity-funded, with a market capitalization of $1.2 billion and a cost of equity (and capital) of 10%. You are considering borrowing $400 million and expanding into a fitness subscription business, and you estimate that the unlevered beta of subscription businesses is 0.80. If the riskfree rate is 4%, the equity risk premium is 5% and the tax rate is 25%, estimate the levered beta for the firm after the expansion. (3 points)

2. You are the owner of a moving/delivery company with a fleet of ten gas-powered trucks. You are considering selling the trucks at their book value of $100,000 (with depreciation of $10,000/ year for the next ten years) and buying ten electric trucks for $500,000 (with a lifetime of ten years and depreciation of $50,000/year). While this transaction will leave your revenues unchanged at $1 million a year, you believe that the savings in fuel costs will increase your EBITDA margin (as % of sales) from 40% to 50%. If your cost of capital is 15% and your tax rate is 25%, **estimate the NPV of this investment**. (4 points)

3. You run a data services firm and are considering investing $120 million in new computer servers with a lifetime of five years and an annual maintenance cost of $30 million a year. How much more would you be willing to pay upfront for new servers with a ten-year life, and the same annual maintenance costs? (Your cost of capital is 10% and you can ignore taxes). (4 points)

4. Nova Pharma is considering changing its debt to capital ratio and you are given the following information on its current debt to capital ratio and the proposed change:

	Current	Proposed
Debt to capital ratio	10.00%	20.00%
Cost of equity	7.25%	
After-tax cost of debt	3.75%	

If you do not want your cost of capital to change, what **does your after-tax cost of debt have to be at the new debt to capital ratio**? (Assume the riskfree rate is 4%, the equity risk premium is 5% and the tax rate is 25%) (3 points)

5. Rover Inc. currently has 200 million shares outstanding, trading at $4/share, and total debt outstanding of $200 million. Its current cost of capital is 9% and it believes that borrowing $200 million and buying back shares at $5 a share will lower the cost of capital to 8%. Estimate the **value per share after the buyback**. (3 points)

6. Ligora Inc. is a shipping and logistics company, with the following balance sheet (in millions):

Shipping (Duration = 12 years)	$1,600	Equity	$1,200
Logistics (Duration - 2 years)	$400	Debt 1 (Duration 15 years)	$400
		Debt 2 (Duration 1 year)	$400

The company is considering borrowing enough money to double the size of its logistics business. If the end game is to match the duration of the debt to the duration of the businesses, estimate the **duration of the new debt**. (3 points)

7. You are trying to assess the effects of taxation on dividend policy by looking at stock price behavior around ex-dividend dates. Your research indicates that the average dividend paid is $2.50, and on average, the stock price drops by $2.25 on the ex-dividend day. The current tax law treats domestic and international investors differently:

a. Domestic investors are taxed at 40% on both dividends and capital gains

b. Foreign investors are taxed at 40% on dividends but do not pay taxes on capital gain

You expect the percent of stock held by foreign investors to double next year. Assuming that the average dividend stays at $2.50 a share, **estimate the expected stock price decline on the ex-dividend day with the new shareholder structure**. (3 points)

8. You have been given the following information on Plano Inc. on its net income, depreciation, dividends and cash balance (in $ millions) for the most recent year and (expected) for next year:

	Most recent year	Expected next year
Net Income	$100.00	$120.00
Depreciation	$50.00	$60.00
Dividends paid	$25.00	$30.00
Ending Cash balance	$80.00	$100.00

Assuming that working capital needs are negligible, and that the firm will fund 20% of its net cap ex (capital expenditures minus depreciation) with debt, **estimate the firm's expected capital expenditures next year.** (3 points)

9. You have been given the expected free cash flows (in $ millions) to a business for the next three years and have been asked to complete the valuation.

	Most recent year	1	2	3
Operating income after taxes	$150.00	$165.00	$181.50	$199.65
+ Depreciation	$40.00	$44.00	$48.40	$53.24
- Cap Ex	$100.00	$110.00	$121.00	$133.10
- Change in WC	$40.00	$44.00	$48.40	$53.24
FCFF	$50.00	$55.00	$60.50	$66.55
PV @ cost of capital of 12%		$49.11	$48.23	$47.37

Assuming that the firm is expected to maintain its current return on capital in perpetuity, and that the growth rate after year 3 will be 3% a year forever, with a cost of capital of 9%, **estimate the value for this firm today**. (4 points)