Spring 2017 Name:

Corporate Finance: Final Exam

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

1. Sumi Inc. is an all-equity funded company that is incorporated in Thailand but gets a large portion of its revenue in the US, while operating in two businesses: steel and chemicals. You have been provided the geographic and business breakdown for the value of the company in the table below (in millions of US$):

Country	Steel	Chemicals	**ERP for Country**
US	$800	$200	**5.00%**
Thailand	$400	$100	**7.25%**
Unlevered beta for business	**1.20**	**0.90**	

The US treasury bond rate is 2.5% and the Thai US$ Government bond rate is 4.5%. Estimate the cost of equity for the company in US dollar terms. (4 points)

2. Collins Inc. is a publicly traded company with a market capitalization (market value of equity) of $900 million and $100 million in interest-bearing debt. You have computed a cost of capital for the company based on this mix:

	Market Value (in millions US$)	*% of Capital*	*Cost of component*
Debt	$100.00	10.00%	3.00% (after tax)
Equity	$900.00	90.00%	9.00%
Capital	$1,000.00	100.00%	8.400%

Reviewing your calculations, you realize that while the unlevered beta (used to estimate a levered beta and a cost of equity) and cost of debt estimates are right, you forgot to capitalize lease commitments, which amount to $120 million a year, each year for the next ten years. If you capitalize leases (and treat them as debt), estimate the correct cost of capital for the company. (The riskfree rate is 3%, the equity risk premium is 5% and the marginal tax rate is 40%) (3 points)

3. You have been asked to estimate the NPV of an investment in a new 3-year venture for a telecomm firm.
    a. The initial investment is expected to be $1 billion and will be depreciated straight line over three years to a salvage value of $100 million at the end of the third year.
    b. During the three years, working capital is expected to be 15% of revenues and the investment has to be made at the start of each year; it can be fully salvaged at the end of the project.
    c. The cost of capital for the investment is 9% and the tax rate is 30%.
    d. The project is expected to have the following revenues and EBITDA for the next 3 years (in millions of dollars)

	1	2	3
Revenues	$1,000.00	$1,200.00	$1,500.00
EBITDA	$300.00	$400.00	$600.00

Estimate the NPV for this project. (4 points)

4. Underpaid at your job, you are considering becoming an Uber driver. While you believe that you can make $12/hour after taxes and vehicle maintenance costs, driving 800 hours a year, you also recognize that you will need to buy a more expensive car (than the one you would normally buy) and that the car will not last as long, if you drive for Uber:

	Without Uber	*With Uber*
Cost of car	$15000	$25000
Car life (in years)	5	3
Salvage value (at end of life)	$5,000	$4,000
Depreciation method	None	Straight line for tax purposes

If your tax rate is 40% and your discount rate is 8%, estimate the annual after-tax income you will earn as an Uber driver, with the incremental car costs factored in. (You can assume that your income will stay constant over time, as will the car related costs in this table). (4 points)

5. Maxim Enterprises currently has the following capital structure (with associated costs):

	Market Value	Cost of Component (after taxes)
Debt =	$400.00	2.40%
Equity =	$600.00	9.30%
Capital	$1000.00	6.54%

The company is expected to generate $48 million in operating income next year and face a marginal tax rate of 40% on taxable income. If Maxim borrows $400 million and buys back stock, you believe that this will double the pre-tax cost of debt. Estimate the cost of capital for the firm after the recapitalization. (The risk free rate is 3% and the equity risk premium is 5%.) (4 points)

6. Conway Inc. has 125 million shares, trading at $8/share, no debt and a cost of equity of 9%. You believe that if the company is able to borrow $400 million and buy back shares, the cost of capital will drop to 8%. If there is no growth in the savings (from a lower cost of capital) and the shares are bought back at $10/share, estimate the value per share for the remaining shares after the buyback. (3 points)

7. Roslyn Inc. is a small, publicly traded company that had revenues of $250 million in the most recent year, while breaking even (a profit of zero). Currently, the company has total working capital of $35 million, which includes a cash balance of $25 million. The table below provides estimates of revenues and net profit margins for the company, for the next five years.

Year	1	2	3	4	5
Revenue (in millions)	$750.00	$1,000.00	$1,200.00	$1,350.00	$1,500.00
Net Profit Margin	2%	3%	4%	5%	6%

The company plans to keep its non-cash working capital, as a percent of revenues, constant for the next five years and has no significant capital expenditures or depreciation over that period. If the company plans to return no cash in years 1 and 2, and pay out 40% of net income as dividends in years 3-5, estimate how much of a cash balance it will have at the end of year 5. (4 points)

8. You are trying to value Hollow Inc. and have estimated the following cash flows for the firm for its high growth period:

	Last year	1	2	3
Expected Growth Rate		7.5%	7.5%	7.5%
EBIT (1-t)	$100.00	$107.50	$115.56	$124.23
+ Depreciation	$20.00	$21.50	$23.22	$25.08
- Cap Ex	$80.00	$86.00	$92.88	$100.31
FCFF	$40.00	$43.00	$45.90	$49.00
Cost of capital		10%	10%	10%

After year 3, Hollow Inc. is expected to be a mature firm, growing 2.5% a year in perpetuity with a cost of capital of 8%. If the company will earn the same return on capital (as it is expected to earn in years 1-3) in perpetuity, estimate the terminal value of the firm, i.e.., the value of the firm at the of year 3. (4 points)