2017 EXAMINATIONS

Lancaster University

PART II (SECOND AND FINAL YEAR)

ACCOUNTING AND FINANCE

AcF 302 CORPORATE FINANCE

(2 HOURS PLUS 15 MINUTES READING TIME)

This examination paper consists of two sections, Section A and Section B. You can obtain a maximum of 50 marks in Section A and a maximum of 50 marks in Section B.

Section A consists of Question 1. Answer ALL subparts of Question 1 from Section A.

Section B consists of Questions 2 and 3. Answer ONE question from Section B. If you answer more than one question from Section B, only the first question attempted will be assessed.

A formula sheet is attached at the end of the paper.

Section A

Section A consists of Questions 1. Answer ALL parts.

Question 1

(a) Why are the annual meetings not an effective way for investors to control managers? Suggest one change which would make annual meetings more effective.

(5 marks)

(b) Give an example of corporate social cost and explain how this social cost can ultimately affect firm value?

(5 marks)

(c) "Anti-takeover provisions can be at the best interest of stockholders." Do you agree with the statement? Explain.

(5 marks)

(d) Battle Mountain is a mining company that mines gold, silver, and copper in mines in South America, Africa, and Australia. The beta for the stock is estimated to be 0.30. Given the volatility in commodity prices, how would you explain the low beta?

(5 marks)

(e) Answer true or false to the following statements:

i. The return on equity for a project will always be higher than the return on capital on the same project.

ii. If the return on capital is less than the cost of equity, the project should be rejected.

iii. Projects with high financial leverage will have higher interest expenses and lower net income than projects with low financial leverage and thus end up with a lower return on equity.

iv. Increasing the depreciation on an asset will increase the estimated return on capital and equity on the project.

v. The average return on equity on a project will decrease during the initial years of the project lifetime but increase later on if we switch from straight line to accelerated depreciation.

(5 marks)

Use the following information to answer questions (f) and (g):

Anaconda Enterprises operates in three different sectors – paper and pulp, hotels and financial services. The following table summarizes information on the three segments:

Segment	*Average beta of comparable firms*	*Average D/E of comparable firms*
Paper & Pulp	1.18	22%
Hotels	1.30	31%
Financial Services	0.90	50%

Anaconda derives 50% of its value from paper and pulp, 20% from hotels and 30% from financial services. The firm also has a market value of equity of $3 billion and market value of debt of $2 billion. The tax rate for all firms is 40%.

(f) Estimate the bottom-up unlevered beta for Anaconda Enterprises.

(5 marks)

(g) What would be a good estimate of the systematic risk of Anaconda Enterprises?

(5 marks)

(h) Road Trust Corporation is a mid-sized transportation firm with 10 million shares outstanding, trading at $25 per share and debt outstanding of $50 million. It is estimated that the cost of capital, which is currently 11%, will drop to 10%, if the firm borrows $100 million and buys back stock. What is the expected change in the stock price if the expected growth rate in operating earnings over time is 5%? Assume that all shareholders, including those selling back stock, get a fair share of the increase in value.

(5 marks)

(i) Sunshine Media has just completed an IPO, where 50 million shares of the 125million shares outstanding were issued to the public at an offer price of $22 per share. On the first trading day, the stock price rose to $40 per share. Who gains from this increase in the price? Explain who gains and who loses from this price increase and by how much?

(5 marks)

(j) National City, a bank holding company, reported earnings per share of $2.40 and paid dividends per share of $1.06. The earnings had grown 7.5 percent a year over the previous five years, and were expected to grow 6 percent a year in the long run. The stock had a beta of 1.05 and traded for ten times earnings. The Treasury bond rate is 7 percent and the equity risk premium is 5.5%.

i. Estimate the P/E ratio for National City based on the information provided.
ii. What long-term growth rate is implied in the firm's actual P/E ratio?

(5 marks)

[Total 50 marks]

Section B

Answer EITHER question 2 OR question 3. Answer all parts of the question.

Question 2

(a) Use the following information to answer questions (a)i. and (a)ii.
Goldstream Communications is a company that provides residential and business phone service. Goldstream is considering investing $1 billion in a segment of the telecommunication equipment business, and you have been supplied with the following information:

- The investment is expected to have a life of 5 years, over which period it will be depreciated straight line to a salvage value of $250 million.
- The annual revenues are expected to be $1.8 billion a year, each year for the next 5 years, and the earnings before interest, taxes, depreciation and allocated G&A is expected to be 25% of revenues in each of those years.
- Goldstream's SG&A (selling, general and administrative) annual expenses are currently $100 million. If Goldstream decides to invest in this project, the annual expenses will increase to $120 million, and a third of these expenses will be allocated to this project.
- The working capital investment (in inventory and accounts receivable) is to be maintained at 10% of the annual revenues, with the investment occurring at the beginning of each year (when such investment is needed).
- If this investment is made, Goldstream will have to buy a new computer to manage inventory in year 2 for $200 million. If the investment is not made, Goldstream would have had to buy a new computer anyway at the end of year 5 for $200 million. These costs would be expensed for tax purposes.
- When the project ends, the investment in working capital will be fully recouped and the book value of the fixed assets will be recovered.
- The cost of capital for this project is 10%. The tax rate is 40%.

Required:

i. Estimate the incremental after-tax cash flows you will have on this investment each year for the next 5 years.

(16 marks)

ii. Estimate the net present value of this investment.

(6 marks)

(b) Describe the different sources of equity funding for companies that do not have access to public equity markets.

(6 marks)

(c) What is meant by "IPO underpricing"? Discuss potential explanations for IPO underpricing.

(7 marks)

(d) You are the manager of a pharmaceutical company and are considering what type of laptop computers to buy for your salespeople to take with them on their calls.

- You can buy fairly inexpensive (and less powerful) older machines for about $2,000 each. These machines will be obsolete in three years and are expected to have an annual maintenance cost of $150.
- You can buy newer and more powerful laptops for about $4,000 each. These machines will last five years and are expected to have an annual maintenance cost of $50.

If the cost of capital is 12 percent, which option would you pick and why?

(5 marks)

(e) You own a small manufacturing plant that currently generates revenues of £2 million per year. Next year, based upon a decision on a long-term government contract, your revenues will either increase by 20% or decrease by 25%, with equal probability, and stay at that level as long as you operate the plant. Other costs run to £1.6 million per year. You can sell the plant at any time to a large conglomerate for £5 million and your cost of capital is 10%. What is the value of the option to sell the plant?

(10 marks)

[Total 50 marks]

Question 3

(a) Use the following information to answer questions (a)i. and (a)ii.:
You are reviewing the earnings and cash flows statements of Heptathlon Ltd, a sports goods manufacturer that is all equity funded and have uncovered the following information on the firm over the last 3 years.

	Year -3 (millions)	Year -2 (millions)	Last year (Year -1) (millions)
Revenues	£1,000	£1,200	£1,500
Net Income	£100	£120	£150
Depreciation	£25	£40	£50
Non-cash Working Capital	£100	£90	£75

The company had a cash balance of £100 million two years ago (at the end of year -3) and has seen that cash balance increase to £120 million today. (You can assume that year -1 has just ended)

Required:

i. Assuming that the firm bought back no equity over the last two years and paid out 40% of its earnings as dividends, estimate how much the firm spent on capital expenditures (cumulated) over the last two years (i.e., years -1 and -2).

(16 marks)

ii. You are now looking at making a forecast for next year and believe that the following assumptions hold:

- Revenues, net income and depreciation are expected to grow 15% next year.
- Non-cash working capital as a percent of revenues will remain unchanged next year.
- Capital expenditures are expected to be 50% higher than depreciation next year.
- The company will finance 25% of its reinvestment needs (net capex and change in working capital) with debt.

If the company wants to maintain its current payout ratio and reduce its cash balance from £120 million to £100 million, how much stock can it buy back next year?

(12 marks)

(b) What is duration, and how can it be used to hedge against interest rate changes?

(5 marks)

(c) What is the duration of a five-year bond with 8% annual coupons trading at par?

(7 marks)

(d) GL Corporation, a retail firm, is making a decision on how much it should pay out to its stockholders. It has $100 million in investible funds. The following information is provided about the firm:

- It has 100 million shares outstanding, each share selling for $15. The beta of the stock is 1.25 and the risk-free rate is 8 percent. The expected return on the market is 13.5 percent.
- The firm has $500 million of debt outstanding. The marginal interest rate on the debt is 12 percent.
- The corporate tax rate is 50 percent.
-

The firm has the following investment projects:

Project	Investment Requirement	After-Tax Return on Investment
A	15	27%
B	10	20%
C	25	16%
D	20	14%
E	30	12%

The firm plans to finance all its investment needs at its current debt ratio. Assume that all the above projects are as risky as the firm.
Should the company return money to its stockholders? If so, how much should be returned to stockholders?

(10 marks)

[Total 50 marks]

Formula Sheet

Present value of perpetuity

$$PV = \frac{c}{r}$$

Present value of growing perpetuity

$$PV = \frac{C_1}{r - g}$$

Present value of annuity

$$PV = \frac{c}{r}\left(1 - \frac{1}{(1+r)^T}\right)$$

Bond Price = $$\sum_{t=1}^{T} \frac{C}{(1+r)^t} + \frac{F}{(1+r)^T} = \frac{C}{r}\left[1 - \frac{1}{(1+r)^T}\right] + \frac{F}{(1+r)^T}$$

Capital Asset Pricing Model

$$E(R_i) = R_f + \beta_i\left(E(R_m) - R_f\right)$$

Equity Risk Premiums

Implied Equity Risk Premium = Expected Return on the Stock index - T.Bond rate

Emerging Market ERP

= Implied Equity Risk Premium in developed market + $\text{Country Default Spread} * \left(\frac{\sigma_{\text{Equity}}}{\sigma_{\text{Country Bond}}}\right)$

Operating Leverage

Fixed Costs Measure = Fixed Costs / Variable Costs

EBIT Variability Measure = % Change in EBIT / % Change in Revenues

Operating Cash Flow

OCF = EBIT(1-t) + depreciation

$$= (\text{Sales} - \text{Costs}) \times (1 - \text{t}) + \text{t} \times \text{Depreciation}$$

$$= (\text{Sales} - \text{Costs}) - (\text{Sales} - \text{Costs} - \text{Depreciation}) \times \text{t}$$

Cash Flow From Assets or Equity (also known as Free Cash Flow to Firm or Equity)

CFFA (or FCFF) = OCF – Capital Expenditure – Changes in non-cash Working Capital

CFFE (or FCFE) = CFFA – after tax interest + Net Debt issues

Weighted Average Cost of Capital with corporate taxes

$$WACC = \frac{E}{E+D}R_E + \frac{D}{E+D}R_D(1-t_c)$$

Beta and leverage

$$\beta_{levered} = \beta_{unlevered} \times \left[1 + (1-t_C) \times \frac{D}{E}\right]$$

Duration of Cash flows

$$D = \frac{1}{PV}\sum_{t=1}^{T} t \times \frac{CF_t}{(1+r)^t}$$

END OF PAPER