MOCK EXAM

PART II (SECOND AND FINAL YEAR)

ACCOUNTING AND FINANCE

AcF 302 CORPORATE FINANCE

(2 HOURS PLUS 15 MINUTES READING TIME)

Answer **ALL** questions from Section A on the multiple-choice answer sheet provided.

Answer **ONE** question from Section B. Answer **ONE** question from Section C.

Answer Section B and Section C in separate answer booklets.

A list of important formulae is included at the end of the examination paper.

Section A (30 marks)

Section A consists of Questions 1 to 10. Answer **ALL** questions.

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1) Which of the following statements is FALSE?

A) When we relax the assumption of a constant debt-equity ratio, the flow-to-equity (FTE) method is relatively straightforward to use and is therefore the preferred method with alternative leverage policies.

B) When debt levels are set according to a fixed schedule, we can discount the predetermined interest tax shields using the debt cost of capital.

C) With a constant interest coverage policy, the value of the interest tax shield is proportional to the project's unlevered value.

D) When the firm keeps its interest payments to a target fraction of its free cash flow, we say it has a constant interest coverage ratio.

2) Which of the following statements regarding real options is FALSE?

A) To make an investment decision correctly, the value of embedded real options must be included in the decision-making process.

B) You invest today only when the NPV of investing today exceeds the value of the option of waiting, which from option pricing theory we know to be positive.

C) When you do not have the option to wait, it is optimal to invest in any positive-NPV project.

D) When you have the option of deciding when to invest, it is usually optimal to invest only when the NPV is positive but close to zero.

3) Aaron Inc went public at £10 per share. Aaron's investment banker charged them £0.70 per share for the IPO. This fee is called a(n):

A) allocation spread.

B) underwriting spread.

C) greenshoe fee.

D) IPO fee.

4) Which of the following statements is FALSE?

A) The general partners work for the venture capital firm and run the venture capital firm; they are called venture capitalists.

B) An important consideration for investors in private companies is their exit strategy—how they will eventually realize the return from their investment.

C) When a company founder decides to sell equity to outside investors for the first time, it is common practice for private companies to issue common stock rather than preferred stock to raise capital.

D) Individual investors who buy equity in small private firms are called angel investors.

5) Bonds issued by a local entity, denominated in the local currency, traded in a local market, but purchased by foreigners are called:

A) domestic bonds.

B) Yankee bonds.

C) Eurobonds.

D) foreign bonds.

6) The amount of cash a firm holds to counter the uncertainty surrounding its future cash needs is known as a(n):

A) speculative balance.

B) compensating balance.

C) operating balance.

D) precautionary balance.

7) Which of the following statements is FALSE?

A) The lower the discount percentage offered, the greater the cost of forgoing the discount and using trade credit.

B) A firm should choose to borrow using accounts payable only if trade credit is the cheapest source of funding.

C) A firm should always pay on the latest day allowed.

D) A firm should strive to keep its money working for it as long as possible without developing a bad relationship with its suppliers or engaging in unethical practices.

8) Which of the following statements is FALSE?

A) There are two primary mechanisms by which ownership and control of a public corporation can change: Either another corporation or group of individuals can acquire the target firm, or the target firm can merge with another firm.

B) Merger activity is greater during economic contractions than during expansions.

C) Mergers and acquisitions are part of what is often referred to as "the market for corporate control."

D) The takeover market is also characterized by merger waves—peaks of heavy activity followed by quiet troughs of few transactions.

9) A board of directors is said to be captured when:

A) a majority of the directors are independent directors.

B) a majority of the directors are outside directors.

C) its monitoring duties have been compromised by connections or perceived loyalties to management.

D) when the CEO also serves as chairman of the board of directors.

10) Which of the following statements is FALSE?

A) A board is said to be classified when its monitoring duties have been compromised by connections or perceived loyalties to management.

B) Even the most active independent directors spend only one or two days per month on firm business, and many independent directors sit on multiple boards, further dividing their attention.

C) On a board composed of insider, gray, and independent directors, the role of the independent director is really that of a watchdog.

D) Because independent directors' personal wealth is likely to be less sensitive to performance than that of insider and gray directors, they have less incentive to closely monitor the firm.

(3 marks for each question)

(Total 30 marks)

<u>Section B</u> (35 marks)

Answer **EITHER** Question 11 **OR** Question 12.

Answer all parts of the chosen question.

Question 11

a) Galaxy Corporation adjusts its debt so that its interest expenses are 21% of its free cash flow. Galaxy is considering an expansion that will generate free cash flows of £2.16 million this year and is expected to grow at a rate of 3.8% per year from then on. Suppose Galaxy's marginal corporate tax rate is 40%.

REQUIRED:

i) What is the levered value of the expansion?

(6 marks)

ii) If Galaxy pays 5.5% interest on its debt, what amount of debt will it take on initially for the expansion?

(5 marks)

iii) What is the levered value of the expansion using the weighted average cost of capital method?

(6 marks)

b) What is IPO underpricing? If you decide to try to buy shares in every IPO, will you necessarily make money from the underpricing?

(8 marks)

c) Describe briefly the four categories of international bonds that a company can issue.

(4 marks)

d) Globas is a private company considering going public. Globas has assets of £695 million and liabilities of £325 million. The firm's cash flow from operations was £115 million for the previous year. After the IPO, Globas will have 110 million shares outstanding. The industry average price to cash flow per share multiple is 3.4, and the average price to book value per share is 2.7.

REQUIRED:

i) Estimate the IPO price for Globas based on the price to cash flow multiple.

(3 marks)

ii) Estimate the IPO price for Globas based on the price to book value multiple.

(3 marks)

(Total 35 marks)

Question 12

a) 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 £1.6 million dollars per year. You can at any time shut down the plant (abandon production) at no cost. Your cost of capital is 10%.

REQUIRED:

i) Given the embedded option to abandon production, what is the value of your plant?

(6 marks)

ii) What is the value of the option to abandon production?

(6 marks)

iii) Suppose instead that it will cost you £1 million to shut down the plant, but you are able to sell the plant for £5 million at any time. What is the value of the option to sell?

(6 marks)

b) What is a bond covenant? Explain how it can reduce a firm's borrowing cost.

(6 marks)

c) Do callable bonds have a higher or lower yield than otherwise identical bonds without a call feature? Why?

(6 marks)

d) Rock Software was founded last year to develop software for gaming applications. The founder initially invested £1,000,000 and received 12 million shares of stock. Rock now needs to raise a second round of capital, and it has identified an interested venture capitalist. This venture capitalist will invest £1 million and wants to own 38% of the company after the investment is completed. How many shares must the venture capitalist receive to end up with 38% of the company?

(5 marks)

(Total 35 marks)

Please turn over

<u>Section C</u> (35 marks)

Answer **EITHER** Question 13 **OR** Question 14.

Answer all parts of the chosen question.

Question 13

a) Indotex is considering to purchase or lease £620,500 worth of sewing machine. If leased, the annual lease payments will be £45,000 per year for five years. If purchased, the equipment will be depreciated on a straight-line basis over five years, after which it will be worthless. Assume Indotex's borrowing cost is 6%, its tax rate is 35%, and the lease qualifies as a true tax lease.

REQUIRED

i) How much can Indotex borrow with a lease-equivalent loan?

(5 marks)

ii) Would you recommend Indotex to lease or buy the sewing machine? Calculate by how much Indotex would be better off if they follow your recommendation.

(5 marks)

b) Consider two firms, Bonnie Corporation and Clyde Company. Both corporations will either make $20,000 or lose $5,000 every year with equal probability. The firms' profits are perfectly negatively correlated. The corporate tax rate is 35%.

REQUIRED

i) What are the total expected after-tax profits of both firms when they are two separate firms, assuming no tax-loss carryforwards or carrybacks?

(4 marks)

ii) What are the total expected after-tax profits if the two firms are combined into one corporation, assuming no tax-loss carryforwards or carrybacks?

(4 marks)

iii) Are Bonnie and Clyde better off running separate or as a combined corporation? Why?

(2 marks)

c) Explain what the agency problem is in corporate governance.

(7 marks)

d) Explain what shareholder activism is.

(8 marks)

(Total 35 marks)

Question 14

a) Your company (Bidder's Ltd.) has earnings per share of £4. It has 1 million shares outstanding, each of which has a price of £40. You are thinking of buying TargetCo, which has earnings per share of £2, 1 million shares outstanding, and a price per share of £25. You will pay for TargetCo by issuing new shares. There are no expected synergies from the transaction.

REQUIRED

i) Calculate Bidder's price-earnings (P/E) ratio pre-merger.

(2 marks)

ii) Calculate the price-earning (P/E) ratio post-merger.

(8 marks)

b) Consider a five-year lease for a £300,000 forklift truck, with a residual market value of £90,000 at the end of the six years. The risk-free interest rate is 8% APR with monthly compounding.

REQUIRED

i) Calculate monthly lease payments for a fair market value lease.

(4 marks)

ii) Is the fair market value lease a capital lease or an operating lease?

(2 marks)

iii) How would this lease impact the balance sheet of the company?

(4 marks)

c) What is the difference between evergreen credit and a revolving line of credit?

(6 marks)

d) Discuss the three different arrangements under which a firm may use inventory to secure a loan.

(9 marks)

(Total 35 marks)

END OF PAPER

Formula Sheet

Present value of a perpetuity

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

Present value of a growing perpetuity

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

Present value of an annuity

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

Present value of an annuity due

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

Effective annual rate

$$EAR = \left(1 + \frac{i}{m}\right)^m - 1$$

Weighted Average Cost of Capital

$$r_{wacc} = \frac{E}{E+D} r_E + \frac{D}{E+D} r_D (1 - \tau_c)$$

Project-based WACC

$$r_{wacc} = r_U - d\tau_c r_D$$

Project-based WACC with Annual Debt Adjustment

$$r_{wacc} = r_U - d\tau_c r_D \frac{1+r_U}{1+r_D}$$

Unlevered Cost of Capital

$$r_U = \frac{E}{E+D} r_E + \frac{D}{E+D} r_D$$

Cost of Equity

$$r_E = r_U + \frac{D}{E}(r_U - r_D)$$

Debt Capacity

$$D_t = d \times V_t^L$$

Adjusted Present Value

$$V^L = APV = V^U + PV(\text{Interest Tax Shield})$$

Free Cash Flow to Equity

$$FCFE = FCF - (1 - \tau_c) \times (\text{Interest Payments}) + (\text{Net Borrowing})$$

Free Cash Flow

$$FCF = EBIT(1 - \tau_c) + Depreciation - Capex - \Delta NWC$$

Levered Value with a Constant Interest Coverage Ratio

$$V_L = (1 + \tau_c k)V_U$$

Annually Adjusted Debt

$$PV(\tau_c \times Int_t) = \frac{\tau_c \times Int_t}{(1 + r_U)^{t-1}(1 + r_D)} = \frac{\tau_c \times Int_t}{(1 + r_U)^t} \times \left(\frac{1 + r_U}{1 + r_D}\right)$$

$$r_{wacc} = r_U - d\,\tau_c\,r_D \frac{1 + r_U}{1 + r_D}$$

Personal Taxes

$$\tau^* = 1 - \frac{(1 - \tau_c)(1 - \tau_e)}{(1 - \tau_i)}$$

$$r_D^* \equiv r_D \frac{(1 - \tau_i)}{(1 - \tau_e)}$$

Unlevered Cost of Capital (CAPM)

$$r_U = r_f + \beta_U (E[R_{mkt}] - r_f)$$

Black-Scholes Formula

$$C = S^x N(d_1) - PV(K)N(d_2)$$

$$d_1 = \frac{\ln[S^x / PV(K)]}{\sigma\sqrt{T}} + \frac{\sigma\sqrt{T}}{2}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

Failure Cost Index

$$\text{FCI} = \frac{1 - PV(\text{success})}{PV(\text{investment})}$$

Leasing

PV(Lease payments) = Price of the Asset – PV(residual value of the asset)

$FCF(Buy)_t$ = - $CapEx_t$ + Depreciation tax $shield_t$

$FCF(Lease)_t$= - Lease $payments_t$ + Income tax $savings_t$

Incremental free cash $flow_t$ = FCF $(Lease – Buy)_t$ = $FCF(Lease)_t$ – $FCF(Buy)_t$

Lease equivalent loan = PV (FCF$(Lease – Buy)_1$ + …+ FCF$(Lease – Buy)_T$)

Valuation and the takeover process

Amount Paid = Target's Pre-Bid Market Cap. + Acquisition Premium

Value Acquired = Target stand alone value + PV(Synergies)

$$Exchange\ ratio = \frac{x}{N_T} < \frac{P_T}{P_A}\left(1 + \frac{S}{T}\right)$$