Module Code
ECO00039I

BSc Degree Examinations 2023-4

Department:
Economics and Related Studies

Title of Exam:
Corporate Finance

Time Allowed: 3 hours (+1 hour for uploading submission)
(PLEASE NOTE: Submissions up to 30 minutes late will receive a 5 mark penalty deduction. Submissions late by more than 30 minutes, will not be marked.)

Time Recommended:
3 hours

Word Limit:
There are word limits specified within the questions.
The word count does not include: i) figures and graphs; ii) equations; iii) a bibliography at the end of the question.
A bibliography is **NOT** required. In-text references (Author, date) are sufficient.

Markers will not read or mark any material beyond the word limits.

Allocation of Marks:
Each question in Part A is worth 2 marks.
Each question in Part B is worth 20 marks.

Instructions for Candidates:
Answer ALL questions.

Any answers you do not wish to be included in the marking **must** be clearly crossed out.

A note on Academic Integrity

We are treating this online examination as a time-limited open assessment. You are therefore permitted to refer to written, and online materials, to aid you in your answers.

However, you <u>must</u> ensure that the work you submit is entirely your own, and for the whole time the assessment is live you <u>must not</u>:

- communicate with departmental staff on the topic of the assessment
- communicate with other students on the topic of this assessment
- seek assistance with the assignment from the academic and/or disability support services, such as the Writing and Language Skills Centre, Maths Skills Centre and/or Disability Services. (The only exception to this will be for those students who have been recommended an exam support worker in a Student Support Plan. If this applies to you, you are advised to contact Disability Services as soon as possible to discuss the necessary arrangements)
- seek advice or contribution from any third party, including proofreaders, friends, or family members.

We expect, and trust, that all our students will seek to maintain the integrity of the assessment, and of their award, by ensuring that these instructions are strictly followed.

Failure to adhere to these requirements will be considered a breach of the Academic Misconduct regulations, where the offences of plagiarism, breach/cheating, collusion and commissioning are relevant - see AM.1.2.1" *(Note this supersedes section 7.3 of the Guide to Assessment).*

Finally, by submitting your work, you are agreeing to the following statements:

I consent to my assignment being submitted for checking against Turnitin's database, to ensure my work is original.

I declare that this assessment is a presentation of original work, I am the sole author and I am not attempting to pass off work created by generative AI content tools as my own.

I understand that:

- *My work may be compared with existing texts within Turnitin's database*
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- *My personal data is protected by the Data Protection Act/GDPR*
- *The University of York may retain a copy of my work in case of appeal*
- *All copyright and Intellectual Property Rights associated with my assignment will remain my own*

PART A.

For multiple choice questions, choose the ONE alternative that best completes the statement or answers the question. For other questions, you are required to show the steps of working in calculations.

1) The firm's revenues and expenses over a period of time are reported on:

A. balance sheet or statement of financial position

B. income statement or statement of financial performance

C. balance sheet or statement of financial performance

D. income statement or statement of financial position

Use the below information for questions 2-4.

York United had a share price of £39.20. They had 91.33 million shares outstanding, a market-to-book ratio of 3.76. In addition, York United had £845.01 million in outstanding debt, £163.82 million in net income, and cash of £257.09 million.

2) York United’s debt-to-equity ratio is closest to:

A. 0.50 B. 0.89 C.0.75 D. 0.24

3) York United’s price-earnings ratio is closest to:

A. 15.96 B. 29.77 C. 21.85 D. 35.64

4) York United’s return on equity (ROE) is closest to:

A. 0.17 B. 0.05 C. 0.27 D. 0.19

Use the following cash flows for questions 5-8.

Project	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Discount rate
Alpha	-79	20	25	30	35	40			15%
Beta	-80	25	25	25	25	25	25	25	16%

5) The NPV for project Alpha is closest to:

A. 24.01 B. 14.41 C. 20.96 D. 16.92

6) The profitability index for project Alpha is closest to:

A. 1.21 B. 1.18 C. 0.21 D. 0.18

7) The payback period for project Beta is closest to:

A. 2.6 years B. 3.1 years C. 3.2 years D. 2.9 years

8) The discounted payback period for project Beta is closest to:

A. 3.2 years B. 4.8 years C. 4.2 years D. 3.9 years

9) According to the Modigliani-Miller (M&M) propositions, which of the following statements is FALSE?

A. The cost of equity increases with the debt-equity ratio

B. Shareholders prefer unlevered firms

C. The overall return on firm remains constant

D. There is no optimal capital structure

TURN OVER

10) Which of the following items is <u>NOT</u> a source of short-term finance?

A. Bank overdrafts
B. Trade credit
C. Equity
D. Short-term leases

Use the below information for questions 11-17.

Home Builder Supply, a retailer in the home improvement industry, currently operates seven retail outlets in Leeds and York. Management is contemplating building an eighth retail store across town from its most successful retail outlet. The company already owns the land for this store, which currently has an abandoned warehouse located on it. Last month, the marketing department spent £13,000 on market research to determine the extent of customer demand for the new store. Now, Home Builder Supply must decide whether to build and open the new store.

Which of the following should be included as part of the incremental cash flows for the proposed new retail store? Briefly explain.

11) The cost of the land where the store will be located.

12) The cost of demolishing the abandoned warehouse and clearing the lot.

13) The loss of sales in the existing retail outlet, if customers who previously drove across town to shop at the existing outlet become customers of the new store instead.

14) The £13,000 in market research to evaluate customer demand.

15) Construction costs for the new store.

16) The value of the land if it is sold for £13,000.

17) Interest expense on the debt borrowed to pay the construction costs.

Use the below information for questions 18-20.

ABC Corporation is planning to repurchase part of its common stock by issuing corporate debt. As a result, the firm's debt–equity ratio is expected to rise from 35% to 50%. The firm currently has £3.6 million worth of debt outstanding. The cost of this debt is 8% per year. ABC expects to have an EBIT of £1.35 million per year in perpetuity. ABC pays no taxes.

18) What is the market value of ABC Corporation before the repurchase announcement?

19) What is the market value of ABC Corporation after the repurchase announcement?

20) What is the expected return on ABC's equity before the repurchase announcement?

PART B.

You are required to show the steps working in calculations.

21) York Plc. is considering launching a new product. The firm has already conducted market research costing £300,000 to assess the attractiveness of the proposed product. The projected sales volume is 110,000 units per year for the next 4 years, the sales price is £245 per unit, the production cost is £110 per unit. Introducing the new product will boost sales of an existing device of which the price and production cost are £100 per unit and £60 per unit, respectively. Assume that the increase in sales of the already existing device is 25% of the projected sales of the new product.

Prior to the actual production during years 1-4, York Plc. has to design the packaging of the new product, costing £15 million. The project will require space for a new lab which will be housed in office space that the company would have otherwise rented out for £200,000 per year during years 1–4. The firm also needs to install new equipment that will require an upfront investment of £7.5 million and will be depreciated straight-line over 5 years. The estimated marketing and support cost for the new product is £2.8 million per year. The project will require no immediate net working capital but will require £2.1 million in net working capital each year during years 1–4.

The corporate tax rate is 20% and the project discount rate is 12%. Calculate the project's net present value.

22) Consider the following pre-merger information about a bidding firm (Firm B) and a target firm (Firm T). Assume that both firms have no debt outstanding.

	Firm B	Firm T
Shares outstanding	5,000	1,500
Price per share (£)	35	28

Firm B has estimated that the value of the synergistic benefits from acquiring Firm T is £10,000.

There are 2 merger offers: a cash offer and a stock offer. With the cash offer, Firm T will be acquired for £32 per share in cash. With the stock offer, Firm B offers four of its shares for every five of Firm T's shares.

Calculate the net present value of the merger and the price per share of the merged firm in each case. Which offer is better for Firm T's shareholders? At what exchange ratio of B shares to T shares would Firm T's shareholders be indifferent between 2 offers?

23) The Board of Directors of York Inc. are designing an employment contract for the company's new CEO. The CEO can exert either a high effort a_H (the equivalent monetary value is 100,000) or a low effort a_L (the equivalent monetary value is 20,000) in managing the company. The Board of Directors are expecting that effort will have an impact on the company's earnings in the way given in the table below. They also know that the CEO has also offers from other companies providing her with a satisfaction level $\bar{U} = 50{,}000$.

Effort/Result	Success: $x_S = 1{,}000$	Failure: $x_F = 100$
High effort (a_H)	Probability of success: 90%	Probability of failure: 10%
Low effort (a_L)	Probability of success: 40%	Probability of failure: 60%

QUESTION CONTINUED OVERLEAF

TURN OVER

The CEO’s utility function is given by:

$$U = w^2 - e$$

Assume the CEO’s effort is not observable, derive the optimal contract.

*******END OF EXAM*******