King’s College London

This paper is part of an examination of the College counting towards the award of a degree. Examinations are governed by the College Regulations under the authority of the Academic Board.

BSc BUSINESS MANAGEMENT / BSc ECONOMICS & MANAGEMENT /
BA FRENCH & MANAGEMENT EXAMINATION

5SSMN224 CORPORATE FINANCE

EXAMINATION PERIOD 1 (January 2017)

TIME ALLOWED: TWO HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer **THREE** questions in total.
2. Candidates must answer Question 1 from Section A and any TWO questions from Section B.
3. Answer each question on a separate page and write the number of the question you are answering.

SECTION A is worth 40 marks.
SRCTION B is worth 60 marks.

CALCULATORS MAY BE USED. ONLY THE FOLLOWING MODELS ARE PERMITTED:
Casio fx83
Casio fx85.

DO NOT REMOVE THIS EXAM PAPER FROM THE EXAMINATION ROOM

TURN OVER WHEN INSTRUCTED

Students <u>MUST</u> answer question 1 *(there are multiple parts to the question, you must attempt all parts)*.

SECTION A: COMPULSORY QUESTION

Question 1

ABC plc is a high street retailer that sells clothing and food. The managing director is very disappointed with the current year's results. The company expanded its operations and commissioned a famous designer to restyle its clothing range. This has led to increased sales in both retail lines, yet overall profits are down. Details of the financial statements for the two years 2016 and 2015 are shown below:

Income statements for the periods:

	30 September 2016		30 September 2015	
	£000	**£000**	**£000**	**£000**
Revenue				
- clothing	16,000		15,600	
- food	7,000		4,000	
		23,000		19,600
Costs of sales				
- clothing	(14,500)		(12,700)	
- food	(4,750)		(3,000)	
		(19,250)		(15,700)
Gross profit		3,750		3,900
Other operating expenses		(2,750)		(1,900)
Operating profit		1,000		2,000
Interest expense		(300)		(80)
Profit before tax		700		1,920
Income tax expense		(250)		(520)
Profit for the period		450		1,400

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Question 1 continued.

Balance Sheets Prepared for ABC Plc

	30 September 2016 £000	30 September 2015 £000
Non-current assets		
Property, plant and equipment at cost	17,000	9,500
Accumulated depreciation	(5,000)	(3,000)
Total non-current assets	12,000	6,500
Current assets		
Inventory		
- clothing	2,700	1,360
- food	200	140
Trade Receivables	100	50
Bank account	Nil	450
Total current assets	3,000	2,000
Total assets	15,000	8,500
Equity		
Issued ordinary capital (£1 shares)	5,000	3,000
Share premium	1,000	Nil
Retained profits	1,750	1,900
	7,750	4,900
Current liabilities		
Bank overdraft	930	Nil
Trade payables	3,100	2,150
Current tax payable	220	450
Total current liabilities	4,250	2,600
Non-current liabilities		
Long-term loans	3,000	1,000
Total Equity and Liabilities	15,000	8,500

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Question 1 continued.

a) Prepare the common sized income statements for ABC plc for 2015 and 2016.

(6 marks)

b) Calculate the following ratios for the year ended 30 September 2015 and 2016.

   i) Return on capital employed
   ii) Total asset turnover
   iii) Operating margin
   iv) Current ratio
   v) Acid-test ratio
   vi) Gearing ratio
   vii) Operating Profit Margin
   viii) Inventories turnover period
   ix) Average settlement period for trade receivables
   x) Sales revenue to capital employed

(20 Marks)

c) Illustrate the DuPont identities of ROA and ROE calculated for years 2015 and 2016.

(4 marks)

(c) Write a report, for the managing director, analysing the financial performance of ABC Plc over the two-year period. Your report should use the above calculated ratios. It should refer, as far as is possible, to the relative performance of the clothing and food sales and be supported by any further ratios you consider appropriate.

(10 Marks)

Total marks for Section A (40 marks)

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Answer TWO questions from Section B *(there are multiple parts to each question; you must attempt all parts)*.

SECTION B

Question 2

a) You are a prudent individual who wants to plan for your retirement. You are now 20 and plan to work for the next 40 years. You will retire at 60. Your actuarial tables tell you that you will live to be 80 (i.e. 20 years after retirement). You estimate that your expenses each year after your retirement till your death will be £30,000 (assume that your expenses are at the end of each year). How much do you have to set apart at the end of each year for the next 40 years to be able to afford this? (Assume that you can invest the money at a return rate of10%).

(10 marks)

b) What is the price of a 10-year, zero-coupon bond with a 4.5% yield and £1,000 face value?

(4 marks)

c) Take the above bond in b) and add annual 3.2% coupons. What is the price of this new bond?

(6 marks)

d) Take the above bond in b) and add annual 5.1% coupons. What is the price of this new bond?

(6 marks)

e) Take the above bond in b) and add annual 4.5% coupons. What is the price of this new bond? Briefly explain the relation between the coupon rate and the bond price.

(4 marks)

Total marks for question 2 (30 marks)

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Question 3

You have run a regression of monthly returns on a stock against monthly returns on the FTSE100 index, and come up with a Beta ratio of 1.25 and the expected market return of 13.5%. The current one-year Treasury bill rate is 4.8%, the current ten-year bond rate is 7.25% and the current thirty-year bond rate is 8%. The firm has 10 million shares outstanding, selling for £10 per share.

a) What is the expected return on this stock over the next year? Explain the theoretic rationale behind your calculation.

(6 marks)

b) Would your expected return estimate change if the purpose was to get a discount rate to analyze a ten-year and a thirty-year investment projects, respectively?

(6 marks)

c) Compare your calculated returns in a)-c) and explain the changes in your expected returns for different investment horizons and discuss the reliability of these estimates.

(4 marks)

d) Briefly discuss the risk diversification in portfolio investment.

(4 marks)

e) The firm has a debt/equity ratio of 50%, and faces a tax rate of 40%. It is planning to issue £50 million in new debt and acquire a new business for that amount, with the same risk level as the firm's existing business. What will the beta be after the acquisition?

(10 marks)

Total marks for question 3 (30 marks)

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Question 4

After your graduation from King's, you are employed by a financial consultancy firm as an investment adviser for wealthy individuals. Two of your clients (investors A and B) are considering two firms, Apple and Pear, both with £50,000 in assets. Firm Apple is un-levered, and firm Pear has £20,000 of debt that pays 8% interest. Firm Apple has 1,000 shares outstanding, while firm Pear has 600 shares outstanding. Investor A owns 20% of firm Pear and believes that leverage works in his favour. His friend, investor B tells investor A that this is an illusion, and that with the possibility of borrowing on her own account at 8% interest, she can replicate investor A's payout from firm Pear. They both seek your opinion on their above strategies. Answer the following questions:

a) Given a level of operating income of £2,500, show whether Investor A's strategy is better than Investor B's.

(10 marks)

b) After seeing Investor B's analysis, Investor A tells Investor B that while her analysis looks good on paper, Investor B will never be able to borrow at 8%, but would have to pay a more realistic rate of 12%. If Investor A is right, what will Investor B's payout be?

(15 marks)

c) Explain your calculations above and comment on the theoretic rationale behind these calculations.

(5 marks)

Total marks for question 4 (30 marks)

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Question 5

You are considering independent projects A and B. Both projects will be depreciated using straight-line depreciation to a zero book value over the life of the project. The two projects have the following cash flow profiles, net income and targets:

	Project A		Project B	
Year	Cash flow	Net income	Cash flow	Net income
0	-£65,000	£0	-£70,000	£0
1	£19,000	£15,000	£10,000	£8,000
2	£48,000	£8,000	£36,000	£16,000
3	£12,000	£2,000	£62,000	£2,000

	Project A	Project B
Required rate of return	10%	13%
Required accounting return	18%	19%

a) Calculate, for the two projects (show the results and your calculations on the exam script):
- Net Present Value;
- Profitability Index;
- Average accounting return;
- Payback period.

(16 marks)

b) Assess which project should be funded, on the basis of the methods mentioned above.

(8 marks)

c) If the two projects were mutually exclusive, which one should be funded? Explain your answer for each method and comment on the relative merits of each method.

(6 marks)

Total marks for question 5 (30 marks)

Total marks for Section B (60 marks)

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