

OLLSCOIL NA hÉIREANN, GAILLIMH  
NATIONAL UNIVERSITY OF IRELAND, GALWAY

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SUMMER EXAMINATIONS, 2001

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B. COMMERCE DEGREE (SECOND YEAR)  
B. COMMERCE WITH LANGUAGE DEGREE (SECOND YEAR)  
SECOND CORPORATE LAW EXAMINATION  
SECOND YEAR INFORMATION TECHNOLOGY EXAMINATION  
FOURTH INDUSTRIAL ENGINEERING EXAMINATION

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BUSINESS FINANCE I - AY208

Professor N. Garrod  
Professor J. F Collins  
Mr. J. F. McDonnell  
Ms. E. Mulligan

Time allowed: TWO AND A HALF hours

**NOTE:** This examination paper is divided into THREE sections as follows:

Section A contains ONE question, which is compulsory. Total marks for this section is 40 marks.

Section B contains TWO questions. Candidates are required to attempt ONE question from this section. Each question carries 30 marks. Total marks for this section is 30 marks.

Section C contains TWENTY Multiple Choice Questions, all of which should be attempted. [NEGATIVE MARKING WILL NOT APPLY]

Total Marks for this Section is 30 marks.

Instructions for Section (C) are detailed on the page preceding the multiple choice questions.

DISCOUNT TABLES ARE ATTACHED.

SEPARATE ANSWER BOOKS MUST BE USED FOR SECTION A &  
SECTION B [SECTION C TO BE ANSWERED ON MCQ SHEET]

## **SECTION A**

**(This question is compulsory)**

**Question 1** (Answer both parts (a) and (b).)

**Part (a)**

Louis Toulet has lived in Ireland for a number of years. He is now considering returning to his native France to set up a wine bottling business. He has noted with interest the increasing consumption of wine in Ireland over the past five years. He plans to export all of his output to Ireland.

He has commissioned a report from a marketing expert at a cost of £10,000 - payment for which is not due until a year from now. If he decides to undertake the wine venture, he would want to sell his business and retire to Ireland in six years in any event.

- (1) He has investigated existing bottling facilities in Lyons and Paris and an opportunity to purchase an ideal facility for £600,000 currently exists in Paris. Toulet Exports Ltd. will be allowed to write off the cost of acquisition immediately against other taxable profits that it expects to have.
- (2) The bottling plant includes all necessary equipment except for a labelling machine. A suitable labelling machine will cost £120,000 now. This would have a zero residual value at the end of six years and would be depreciated on a straight line basis.
- (3) Annual bottling operating expenses, including wages to workers, salary for himself and other running costs of the bottling facility (exclusive of depreciation) are expected to be £25,000 per year for the first three years and £45,000 per year thereafter.
- (4) It is expected that the facility will bottle and sell 2,800 crates of wine each year. The market report suggests that each crate (consisting of 12 bottles) will sell for £60 per crate for the first three years and at £70 per crate thereafter.
- (5) Costs identified in respect of packing and shipment of the crates are estimated at £5 per crate over the full period of his investment.
- (6) The venture would require an investment of working capital of £70,000 immediately.
- (7) The report suggests that the bottling facility could be sold at the end of year six for £340,000.
- (8) Louis has agreed to employ his brother from the first year on a part-time basis in the new business venture at a salary of £5,000 per year. As part of the settlement of the Toulet family estate, on his father's death last year, Louis agreed to pay his brother £10,000 each year for 10 years. Louis now intends to pay this annuity out of the cash flows of the new wine export business, for the next six years.
- (9) Taxation is levied at a rate of 30% on corporate profits and capital gains, and is payable in the same year the liability arises.
- (10) The cost of capital for the new company, "Toulet Exports Ltd." is 10%.

**(Cont'd. on page 3)**

**(Question 1 cont'd.)**

**You are required to:**

- (i) Prepare a statement of after-tax flows attributable to the project; **and**  
using the Net Present Value method, evaluate the proposal as outlined and advise Louis Toulet, clearly stating the basis for your decision. Where appropriate, you should identify the reasons for the inclusion/exclusion of a particular cost or revenue.  
(18 Marks)
- (ii) Calculate the internal rate of return and the payback period for this investment opportunity and comment briefly on the suitability of the payback method of appraisal in this instance.  
(8 Marks)

**Part (b)**

Discuss the problem of Capital Rationing in the context of capital budgeting

(6 Marks)

**and**

using the following data, show how you would deal with the problem of single period capital rationing:-

<b><u>Projects under Consideration</u></b>	<b><u>Investment Required</u></b>	<b><u>N.P.V.</u></b>
A	£600,000	£300,000
B	£440,000	£240,000
C	£200,000	(£10,000)
D	£164,000	£ 80,000
E	£340,000	£200,000

Assume projects are independent of one another, investments may be accepted in part or in full and total funds available for investment amount to £1.1m.

(8 Marks)

**Total: 40 Marks**

**Section B follows on the next page..**

## **SECTION B**

**(ONE question to be attempted from this Section)**

### **Question 2** (Answer both parts (a) and (b).)

#### **Part (a)**

Caesar Ltd is currently considering relaxing its credit standards. Under the firms current credit policy, customers classified in the two top credit categories – Group 1 (low risk) and Group 2 (average risk) – are granted credit on the basis of “2/20 net 60”. The above average risk firms in Group 3 must pay cash on delivery for any materials purchased from Caesar Ltd.

Under the current credit policy Caesar Ltd has £25 million in credit sales, a 62 day average collection period and a bad debt loss ratio of 3%.

Caesar Ltd estimates that by extending credit to the firms classified as above average risk, it can increase its total credit sales by 30%. In order to support the increase in sales the firm's cash balance and investment in stock is expected to increase by £0.50 million and £1.8 million respectively.

Caesar Ltd expects the above average risk customers in Group 3 to have a 75 day average collection period and a bad debt ratio of 5%.

If the firm extends credit to the above average risk customers, the percentage of total customers (all groups) taking advantage of the cash discount is expected to decline from 36% to 32%.

Caesar Ltd requires a 14% pre-tax return on its investment in cash balances, debtors and stock.

#### **You are required to:**

On the basis that Caesar Ltd has a variable cost ratio of 87%, determine the impact that extending credit to the above average risk customers in Group 3 will have on its pre-tax profits. Assume that the payment characteristics of Groups 1 and 2 are not affected by the relaxation of credit standards. State clearly what other assumptions are implicit in your analysis.

**(15 Marks)**

#### **Part (b)**

Discuss Working Capital Management under the following two headings:

- i. Importance of working capital and its management in general; **and**
- ii. The factors to be considered in determining levels (size) and nature of working capital investment and the cost/benefit trade-offs for different levels.

**(15 Marks)**

**Total: 30 Marks**

**Question 3 follows on the next page..**

### Question 3

The following information is available on the long-term capital structure of Benson plc, in its most recent financial statements.

Ordinary Share Capital	£
(2,000,000 shares of £1 each)	2,000,000
Share Premium	500,000
Retained Earnings	800,000
10% Preference Share Capital	
(2,400,000 shares of 50p)	1,200,000
12% Debentures	<u>1,500,000</u>
	6,000,000

The company considers the present capital structure proportions (in market value terms) as satisfactory and intends to maintain these proportions for the foreseeable future.

The following information is also available:

1. The debt of Benson is currently quoted at £120 per £100 (nominal) of debt issued.
2. The ordinary shares are now quoted in the market at £3 each and the preference shares are now quoted at their nominal value of 50p each. Both types of shares have recently paid a dividend:  
-ordinary shares-20p dividend per share  
-preference shares-5p dividend per share
3. The ordinary share dividend payment represents a growth rate of 10% over the previous years dividend, and this growth rate is expected to continue for the foreseeable future. A study of past share price behaviour, relative to the market index, suggests a beta value of .95 for the company's shares.
4. The preference shares are irredeemable.
5. The debt currently in issue is due for redemption in ten years time.
6. The expected rate of return on the market portfolio is 20% per annum for the foreseeable future. Benson is liable to corporation tax at 30%. The current yield on short-term Government Debt is 6% per annum.

#### You are required to:

- a) (i) Estimate the cost of each component of long term finance employed by Benson plc (In the case of equity taking an average of both the dividend valuation model and the capital asset pricing model)  
and  
(ii) Estimate the weighted average cost of capital for Benson Ltd  
(22 Marks)
- b) Given that the required rate of return for a security includes the risk-free rate of return and a risk premium, outline and explain the factors that go to determine or influence  
(i) the risk-free rate  
(ii) the risk premium  
(8 Marks)

**Total: 30 Marks**

**Section C follows on the next page..**

## SECTION C (QUESTION 4)

Your answers to this section must be on the special purpose MCQ (multiple choice questions) Answer Sheet which must be completed separately in accordance with the instructions given.

### INSTRUCTIONS FOR COMPLETION OF MCQ SHEET

IT IS MOST IMPORTANT THAT YOU FOLLOW THESE INSTRUCTIONS. THE MCQ ANSWER SHEET FORM WILL BE READ BY MACHINE AND FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN NO MARKS BEING AWARDED FOR THIS SECTION.

- o Enter your Candidate Number in the appropriate line at the top right hand corner:

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**URGENT:** Your Candidate number for this purpose is your **8 DIGIT STUDENT NUMBER (NOT EXAMINATION NUMBER)**  
This number should fill the first 8 boxes and should be followed at the end by **0 (zero)** to complete the nine digit candidate number box e.g. if student number is 12345678 you should enter

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1	2	3	4	5	6	7	8	0
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- o Enter immediately your
  - name
  - examination
  - date
- o Use only HB pencil or blue/black biro
- o Indicate your choice of answer like this (Assuming you consider [ c ] to be the correct answer for question 1)

> [ a ] [ b ] [~~c~~] [ d ] [ e ]

- o If you have a change of mind Tippex out neatly and remark new choice.
- o Do not mark in any other way, e.g. no ticks, crosses or circles
- o Candidates are strongly advised to spend at the very maximum 1 hour on this section. Each question has a value of 1½ marks and accordingly, spending an inordinate amount of time on any one question would be ill-advised.

1. The risk-free rate of return is composed of \_\_\_\_\_.
  - a. real rate of return
  - b. inflation premium
  - c. a and b
  - d. none of the above
  
2. Christy purchased 100 shares of General Data for £48 last year. Yesterday she sold the stock for £45. If she received £4 in dividends during the time she held the security, what is her holding period return?
  - a. 2.08%
  - b. 8.30%
  - c. -6.30%
  - d. 14.60%
  
3. Jane wants to have £200,000 in an account in 20 years. If her account earns 11 percent per annum over the accumulation period, how much must she save per year (end of year) to have the £200,000?
  - a. £25,116
  - b. £3,115
  - c. £10,000
  - d. £3,492
  
4. The lease on a new office requires an immediate payment of £24,000 plus £24,000 per year at the end of each of the next 10 years. At a discount rate of 14 percent, what is the present value of this stream of lease payments?
  - a. £130,872
  - b. £149,194
  - c. £142,710
  - d. £264,000

**Continued on the next page: P.T.O =>**

5. The \_\_\_\_\_ the investor's required rate of return on a bond, the \_\_\_\_\_ will be the value of the bond to the investor.
- a. lower, higher
  - b. higher, higher
  - c. lower, lower
  - d. none of the above
6. Two years ago, Trans-Atlantic Airlines sold £250 million worth of bonds at £1,000 each. The bonds had a maturity of 12 years and a coupon rate of 12%. Today these bonds are selling for £910. Determine the yield-to-maturity (to the nearest tenth of one percent).
- a. 13.2%
  - b. 5.6%
  - c. 13.7%
  - d. 12.0%
7. In the constant-growth dividend valuation model, the required rate of return must be \_\_\_\_\_ the dividend growth rate in order for the formula price to be meaningful.
- a. less than
  - b. equal to
  - c. greater than
  - d. proportional to
8. Phillips Industries common stock currently sells for £50 and is expected to pay a dividend of £3.00 next year. Determine the implied growth rate for Phillips Industries dividends assuming that an investor's required rate of return on this stock is 14%.
- a. 6%
  - b. 8%
  - c. 14%
  - d. 20%

**Continued on the next page: P.T.O =>**



9. What is the current value of a share of Chyrox if its current dividend is £1.50 and dividends are expected to grow at an annual rate of 20 percent for the next 5 years? Assume the investor has a required rate of return of 15 percent and expects to sell the security in 5 years for £72.
- a. £44.31
  - b. £35.78
  - c. £39.63
  - d. £72.00
10. What will happen to the Security Market Line if: (1) inflation expectations increase, and (2) investors become more risk averse?
- a. shift up and have a steeper slope
  - b. shift down and have the same slope
  - c. shift down and have a steeper slope
  - d. shift up but have less slope
11. Raider Productions has to decide whether to build its warehouse in Dallas or Houston. This decision falls into the class of:
- a. independent projects
  - b. mutually exclusive projects
  - c. contingent projects
  - d. marginal projects
12. The payback period of an investment is defined as:
- a. the number of years required for cumulative profits from a project to equal the initial outlay.
  - b. the number of years required for the cumulative cash flows from a project to equal the initial outlay.
  - c. the number of years required for the cumulative cash flows from a project to equal the average investment in the project, when depreciation is considered.
  - d. a period of time sufficient to earn a rate of return equal to the firm's cost of capital.

**Continued on the next page: P.T.O =>**

13. If a net present value analysis for a normal project gives an NPV greater than zero, an internal rate of return calculation on the same project would yield an internal rate of return \_\_\_\_\_ the required rate of return for the firm.
- a. greater than
  - b. less than
  - c. equal to
  - d. cannot be determined from the information given
14. Generally the \_\_\_\_\_ a firm's business risk, the \_\_\_\_\_ the amount of financial leverage that will be used in the optimal capital structure.
- a. greater, greater
  - b. smaller, less
  - c. greater, less
  - d. none of the above is correct
15. All of the following are disadvantages of leasing except \_\_\_\_\_
- a. difficulty in making property improvements
  - b. financial leases are non-cancellable
  - c. normally higher maintenance charges
  - d. generally higher cost than ownership
16. The length of the operating cycle for a firm is equal to the length of the
- a. payables deferral period
  - b. cash conversion cycle
  - c. receivables conversion period
  - d. a plus b

Continued on the next page: P.T.O =>

17. Average daily sales for Sierra are £140,000. The financial manager can reduce the float by 4 days using a lockbox system that will cost £33,000. If the opportunity cost of any funds released is 11 percent, what is the annual savings from this system?
- a. £28,600
  - b. £14,520
  - c. £61,600
  - d. none of the above
18. All other things being equal, the application of a seasonal dating to the terms of credit offered by the firms below would be expected to generate additional sales for each firm except
- a. a Christmas novelty manufacturer
  - b. an agricultural implements manufacturer
  - c. a wholesale frozen food supplier
  - d. none of the above
19. Prestige Printers, Inc. a nationwide printing firm, sells personalized stationary at a uniform rate throughout the year. Demand is currently running at the rate of 250,000 boxes of envelopes per year. The firm purchases envelopes (boxes of 100) at a price of £0.50 per box and orders are filled virtually instantaneously, i.e. zero lead time. Ordering costs are £25 per order. Annual carrying costs are 25 percent of the inventory value. When converting from annual to daily data or vice versa, assume there are 365 days per year. Determine the economic order quantity of envelope boxes.
- a. 100,000
  - b. 10,000
  - c. 7,071
  - d. none of the above
20. \_\_\_\_\_ is (are) used when evaluating mutually exclusive investments having unequal lives:
- a. Equivalent annual annuities
  - b. Replacement chains
  - c. Linear programming
  - d. a and b only

**(End of Multiple Choice Section)**