

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SUMMER EXAMINATIONS, 2000

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

BUSINESS FINANCE I - AY208

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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. 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.

SECTION A

(This question is compulsory)

Question 1:

Lewis Investments Ltd. is considering the development of a new health centre in Galway. The company commissioned a market and information report at a cost of £95,000. By arrangement with the consultants, this will be payable one year from now and is conditional on the company proceeding with the project. Based on this report, the following information is available:

- (1) The site and building for the proposed venture will be leased for a fixed period of fourteen years at an annual rental of £95,000, payable in arrears.
- (2) The cost of the required investment in equipment and furniture is estimated at £225,000 and further expenditure of £235,000 is required for redecoration and the installation of equipment. These costs can be written off immediately for tax purposes under a scheme of tax incentives to improve tourist amenities on the west coast. The equipment and furniture are not expected to have any salvage value at the end of the project.
- (3) Annual replacement expenditures on equipment are expected to amount to £45,000, commencing in year 1. Such expenditures are considered to be normal expenses for taxation purposes.
- (4) Net working capital for the centre in the amount of £140,000 will be required immediately the centre is opened.
- (5) Annual sales are estimated at £900,000 and the expected level of contribution margin is 45% of sales.
- (6) Fixed operating costs for the centre are expected to amount to £105,000 per year, excluding accounting depreciation.
- (7) There is an obligation on Lewis, if they proceed with the project, to restore the building to its original layout at the end of the lease period. This is estimated to cost £200,000 at that time.
- (8) Lewis Investments pays taxes at a rate of 35% of taxable profits in the same year the liability arises. Assume that the company has sufficient taxable profits on its other activities to absorb any tax losses on the operation of the proposed centre. The Consultants report cost, if relevant, is not allowable for tax purposes.
- (9) The relevant cost of capital for this project is 16%

cont'd..

Question 1, cont'd..

Required:

- (a) Prepare a statement of after-tax cash flows attributable to the project for each year of its fourteen year life.
(17 marks)
- (b) Estimate the Net present Value (NPV) and the Internal Rate of Return (IRR) for this project, and for each criterion, recommend whether the project should be accepted.
(7 marks)
- (c) Critically evaluate each model used and comment briefly on the suitability or otherwise of each method of appraisal in this particular instance, stating reasons.
(6 marks)
- (d) When mutually exclusive investments are considered, it is assumed that alternative projects have equal lives. In practice this may not be the case. Using the data given below, show calculations and explain all methods with which you are familiar for dealing with this problem.

Relevant data: (Assume here cost of capital is 12%)

There is a need to replace a production machine. Replacement choices differ in terms of their cost, economic life and capacity. Assume benefits are constant irrespective of replacement choice.

The following are the net after tax cashflows associated with each of two possible replacement machines.

Replacement will be either Machine A or Machine B.

Machine	A	B
Cost	< £132000 >	< £190,000 >
t ₁	£32,000	£70,000
t ₂	£32,000	£70,000
t ₃	£32,000	£70,000
t ₄	£32,000	£70,000
t ₅	£32,000	
t ₆	£32,000	
t ₇	£32,000	
t ₈	£32,000	

(10 marks)

Total: 40 marks

(Question 2 begins on the next pagePTO)

SECTION B

(ONE question to be attempted from this Section)

Question 2 : (Answer all parts)

- a) Ventox Ltd currently pays a dividend of £3.00 per share. The company expects this dividend to grow at an annual rate of 7% for the next 2 years. The dividend is then expected to increase by £1 in year 3 and to grow at a constant annual rate of 4% thereafter. As an investor with a 10% required rate of return, how much would you expect to pay for 200 shares in Ventox Ltd?

(12 Marks)

- b) Pentro Ltd has 14% fixed interest debenture bonds in issue. These were issued some years ago in £1,000 denominations and are due to mature, at par, at the end of 2015. Interest is compounded and paid annually.

- (i) Determine the exact yield to maturity assuming an investor purchased one only £1,000 bond for £1,100 at the end of 1996.

(8 Marks)

- (ii) Briefly explain why a fixed income bond may be traded at a price below its par value.

(4 Marks)

- c) 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

(6 Marks)

Total: 30 Marks

(Question 3 begins on the next pagePTO)

Question 3

Neltor Ltd exports goods to France and presently processes all its credit sales payments at its head office in Mallow, Co Cork. The company is concerned about the adverse impact which postal delays and cheque clearing times are having on the company's cash flow position. The company's present annual collections from debtors in France are £194 million, the average number of payments being 38,000 per month. In an effort to improve the position, Neltor is presently negotiating a lockbox/cheque clearing facility with two banks – Banque de Nice and Banque de Paris.

Banque de Nice is prepared to offer the facility to Neltor for an annual fee of £40,000 and a requirement to maintain a £1.5 million, non-interest bearing compensating balance account with the bank at all times. Under these arrangements mail time delays would be reduced from 6 days to 2 days and cheque processing and collection times would be reduced by 2 days.

The proposal put forward by Banque de Paris is to charge an annual fee of £15,000 plus £0.12 per payment processed. If this offer is taken, Neltor believes mail time delays would be reduced from 6 days to 4 days, whereas cheque processing and collection times would be reduced from 6 to 3 days.

Assume any funds released would be used to reduce the company's debt, which currently carries an interest rate of 9%.

You are required to:

- a) Evaluate each of the proposals being considered by Neltor Ltd and recommend which bank the company should do business with in this regard.

15 Marks

- b) Discuss one of the following in the context of financial management:

- (i) the stock market and market efficiency
- (ii) the maximisation of shareholder wealth and agency problems/costs.

15 Marks

Total: 30 Marks

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 primary reason for the divergence between the shareholder wealth maximisation goal and the actual goals pursued by management has been attributed to
 - (a) separation of social responsibility and stakeholders' concerns
 - (b) separation of ownership and control
 - (c) separation of personal welfare and long-run profit goals
 - (d) the granting of short-term management job contracts
2. Depreciation _____ reported profits and it _____ taxes payable by a firm.
 - (a) increases, reduces
 - (b) reduces, reduces
 - (c) reduces, increases
 - (d) increases, increases
3. Suppose that investors cannot expect to earn excess returns based on an investment strategy using inside information. This would be an example of _____ market efficiency.
 - (a) strong-form
 - (b) weak-form
 - (c) semi-weak-form
 - (d) semi-strong-form
4. Jack is 30 years old and wishes to retire in 25 years time. He can invest in a pension fund which will earn a 10 percent annual return, and he wants to have a £600,000 retirement fund at age 55. How much must he invest (to the nearest £10) at the end of each year to achieve this goal?
 - (a) £ 24,000
 - (b) £ 10,300
 - (c) £ 6,100
 - (d) £ 8,400
5. An automated drill costs £60,000 and is expected to have a 4 year life. The drill will be depreciated for tax purposes on a straight-line basis over 4 years to a zero estimated salvage value. It is expected to reduce the firm's cash operating costs by £18,000 per year. If the firm has a 20 percent marginal tax rate, determine the annual after-tax net cash flows generated by the drill.
 - (a) £ 2,400
 - (b) £17,400
 - (c) £14,400
 - (d) £ 3,000

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6. Retro Industries balance sheet at December 31, 1999 is as follows:

<u>Assets</u>		<u>Liabilities and Equity</u>	
Cash	£ 8,000	Creditors	£ 36,000
Short-term Deposit	£ 4,000	Short-term Debt	£ 12,000
Debtors	£ 60,000	Other Current Liabilities	£ 32,000
Inventories	£ 100,000	Long-term Debt	£ 80,000
Net Plant & Equip.	£ 156,000	Preference Share Capital	£ 48,000
		Ordinary Share Capital	£ 20,000
		Share Premium	£ 40,000
		Retained Profits	£ 60,000
Total Assets	<u>£ 328,000</u>	Total Liabilities and Equity	<u>£ 328,000</u>

What is Retro's Net Working Capital at the end of 1999?

- (a) minus £8,000
 - (b) £ 36,000
 - (c) £ 92,000
 - (d) £172,000
7. Western Airlines (WA) has just paid an annual dividend of £3.00. Dividends are expected to grow at a rate of 5 percent a year for the foreseeable future. What is WA's cost of external equity if its shares can be sold to net £46 a share?
- (a) 11.52%
 - (b) 8.15%
 - (c) 6.52%
 - (d) 11.85%
8. Fancy Cards Ltd. sells greeting cards at a uniform rate throughout the year. Demand is currently running at the rate of 25,000 boxes of cards per year. The firm purchases boxes of cards at a cost of £25.00 per box and orders are filled virtually instantaneously, i.e. zero lead time. Ordering costs are £100 per order. Annual carrying costs are 20 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 (EOQ) of boxes of cards.
- (a) 5,000
 - (b) 1,000
 - (c) 2,500
 - (d) 1,500
9. Multiple internal rates of return can occur when there is (are):
- (a) A negligible disposal value for assets at the end of a project's life
 - (b) large shutdown costs at the end of a project's life
 - (c) Above-average investment required before the project begins.
 - (d) (b) and (c)

Continued ... /

10. You sold 1000 shares today for £30 per share that you paid £10 for 5 years ago. Determine the average annual rate of return on your investment, to the nearest whole percentage, assuming the shares paid no dividends.
- (a) 25%
 - (b) 20%
 - (c) 80%
 - (d) 14%
11. In the constant growth dividend valuation model, it is assumed that:
- (a) The dividend growth rate is less than the required rate of return
 - (b) The firm's future dividends will grow at a constant rate forever
 - (c) The required rate of return is constant forever
 - (d) All of the above are correct
12. What is the value of an ordinary share of Ubh Teo. to an investor who requires a 12 percent rate of return if Ubh's current dividend is £1.20? Assume that Ubh's earnings and dividends are expected to grow at a compound annual rate of 7 percent for the foreseeable future.
- (a) £24.00
 - (b) £18.34
 - (c) £25.68
 - (d) £10.00
13. The relationship between NPV and IRR is such that:
- (a) both always provide the same ranking of alternative investment projects.
 - (b) the IRR of a project is equal to the cost of capital if the NPV of a project is £0.
 - (c) if the NPV is negative, the IRR must be greater than the cost of capital.
 - (d) none of the above
14. Superpratt has an inventory conversion period of 40 days, a debtors conversion period of 50 days, a creditors deferral period of 30 days, and a product warranty period of 90 days. What is the length of its operating cycle?
- (a) 120 days
 - (b) 90 days
 - (c) 60 days
 - (d) 10 days

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15. You have just inherited a £ 50,000 bond that pays no interest and matures in 20 years. If the discount rate is 10%, how much is the bond worth?
- (a) £ 7,450
 - (b) £ 8,175
 - (c) £ 8,900
 - (d) £ 1,490

16. Euro Tours has been offered a two year old bus under a five year lease arrangement which requires Euro to make an annual lease payment of £15,000 at the beginning of each of the next five years. What is the present value cost of the bus if the cost of capital is 10%?
- (a) £75,000
 - (b) £62,551
 - (c) £56,865
 - (d) £68,182

17. The following financial information is available on Nuts and Bolts Plc.

Current market price per share	£ 14.00
Beta	1.60
Expected rate of return on market	20.00%
Risk-free rate	8.00%

Determine the cost of internal equity capital (retained earnings) using the capital asset pricing model (CAPM) approach. (Calculate to the nearest 0.1%).

- (a) 32.0%
 - (b) 12.8%
 - (c) 16.6%
 - (d) 27.2%
18. Zodiac Match Company has annual credit sales of £3,600,000, and its credit terms are "net 30". Currently, the firm's average collection period is 60 days. In an effort to speed up the collection of debtors, Zodiac is considering offering a cash discount of 2 percent if customers pay their bills within 10 days. The firm expects 50 percent of its customers to take the discount and its overall average collection period (including discount and non-discount customers) to decline to 30 days. The firm's required pre-tax return (i.e. opportunity cost) on debtors investment is 10 percent. Determine the annual saving in the cost of investment in debtors attributable to the cash discount. Assume a 360 day year in all calculations.
- (a) £ 30,000
 - (b) £ 60,000
 - (c) £ 40,000
 - (d) £ 48,000

Continued ... /

19. Omega Manufacturing faces capital rationing this year. The company has £800,000 to invest in new projects, but the four available projects require a total investment of £950,000. Since projects are infinitely divisible, any positive fraction of a project may be taken on, and it will have a net present value equal to that fraction of the projects total NPV. Details of the available projects are as follows:

<u>Project</u>	<u>Investment</u>	<u>Net Present Value</u>
A	£350,000	£70,000
B	£250,000	£22,500
C	£150,000	£15,000
D	£200,000	£30,000

How much should the company invest in Project C ?

- (a) No investment in Project C
 - (b) £ 50,000
 - (c) £100,000
 - (d) £150,000
20. Star Cruisers is deciding which of two alternative boats it should buy. The financial analyst has calculated the following indicators of investment worth for each of the two mutually exclusive alternatives:

	<u>Super Six</u>	<u>Rapid Seven</u>
Internal Rate of Return (IRR)	14%	12%
Accounting Rate of Return (ARR)	13%	12%
Payback Period	4 Years	5 years
Profitability Index (PI)	0.15	0.14

You may assume that Star Cruisers has unlimited capital available at a cost of 10%. What should Alpha Cleaners do?

- (a) Choose Super Six
- (b) Choose Rapid Seven
- (c) Choose neither
- (d) Cannot be determined from the available data.

(End of Multiple-Choice Questions)