

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SUMMER EXAMINATIONS, 2002

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. **[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

Inver Plc. manufactures and sells a range of products. A marketing and financial report, commissioned at a contracted cost of €80,000 and due for payment a year from now, indicates the following forecasts and expectations with respect to a newly developed product.

- Existing production machinery is unsuitable for the proposed new product and new machinery costing €750,000 will be immediately required. This equipment should have a market value of €60,000 at the end of the product life cycle, expected to be five years. It is company policy to depreciate all capital costs for tax purposes on a straight line basis over three years, taking residual value as zero.
- The purchase of new machinery would result in some extra production capacity which will allow for the sale immediately of some old equipment at €44,000. The net book value of this equipment is zero and full tax allowances have been claimed. If retained in use, this machinery would have a market value of €10,000 in five year's time. Additionally, the extra capacity available would bring cost savings to other product areas of £15,000 annually over each of the five years.
- Selling price of the product would be set at €150 per unit and sales in units are forecasted at 4,000 units in year one, 6,000 units in year two, 9,000 annually in each of years three and four inclusive and declining to 6,000 units in the final year.
- Variable costs of production of €75 per unit. Distribution and selling costs are expected to be €35 per unit.
- Increased working capital requirements particular to this product (introduced at the commencement of the year) are expected to be €50,000 in year one, €150,000 in year two and €100,000 in year three.
- Fixed overheads attributable to the new product activity are expected to be €55,000 per year (excluding depreciation). There is also an allocation of existing overheads to be assigned to the new product amounting to €40,000 per annum.
- Corporation Taxes are levied at 30% and Capital Gains/Losses Taxation at 50%. Both tax categories are payable/recoverable in the same year as earned. The company is highly profitable in all other product areas and this position is expected to continue indefinitely.
- Cost of capital is estimated at 10%.

(Cont'd..)

Question 1 cont'd..

You are required to:

- (a) prepare a statement setting out the after-tax cash flows attributable to the commercialisation of the new product over its life cycle. (18 Marks)
- (b) calculate the net present value (NPV) for this project and indicate your recommendations in respect of your findings. (3 Marks)
- (c) Ignore the cash flow you have estimated in part (a) and assume that the cash flows attributable to the new product are as follows:

<u>Time 0</u>	<u>Time 1</u>	<u>Time 2</u>	<u>Time 3</u>	<u>Time 4</u>	<u>Time 5</u>
(€200,000)	€10,000	€80,000	€90,000	€50,000	€50,000

Note: This is NOT the solution to part (a).

Assuming the cost of capital remains at 10% as given in the question, calculate the internal rate of return (IRR) on the above cash flow. Recommend whether in this case you would accept or reject and explain why you arrived at this conclusion.

Additionally, indicate if the IRR is a suitable model to use, or otherwise, in this particular instance, explaining the reason(s).

(7 Marks)

- (d)(i) Other approaches to capital investment appraisal include Payback and Accounting Rate of Return (ARR). Outline the methodology of **both** methods.
- (ii) critically evaluate and contrast all four models (NPV, IRR, Payback and ARR) as evaluation methods, detailing the relevant advantages and disadvantages of each.

(12 Marks)

Total: 40 Marks

SECTION B

(Candidates are required to answer ONE question from this Section)

Question 2

Merton Ltd. has very recently paid a dividend of €5 per ordinary share to shareholders. Next year's dividend is firmly expected to be 5% greater. Thereafter, the company anticipates profit growth of 10% per annum for the following four years, 8% per annum over the following three years and growth of 4% per annum indefinitely thereafter. The company intends increasing dividend payments in line with earnings growth.

The company also has fully secure debentures in issue. These debentures were issued on 1st January 1995 at €500 par per debenture, at a fixed interest rate of 7%. They are due to mature on 31st December 2013. Interest is compounded and paid annually on 31st December.

You are required to:

- (a) calculate the current value of 1,000 ordinary shares in Merton Ltd. assuming you are an investor requiring a 12% return on investment. **(12 Marks)**
- (b) in the case of Merton's Debentures, calculate the exact yield to maturity on the assumption that an investor purchased one bond for €470 on 1st January 2002. **(6 Marks)**
- (c) calculate what price an investor, requiring a 10% return on investment, would pay on 1st January 2003 for one Merton Debenture. **(4 Marks)**
- (d) compare and contrast the main differing features of ordinary and preference shares in general

and

outline the main characteristics of any preference share types with which you are familiar.

(8 Marks)

Total: 30 Marks

Question 3

Stark Ltd. currently allows its customers 30 days credit net and offers a cash discount of 2% for payment within 10 days, i.e. "2/10, net 30". Currently, the company's collection period averages 42 days and bad debts at the present time average 1¼% of credit sales.

In an effort to speed up collection, Stark are considering increasing the cash discount offered to 3% for payment within 10 days, i.e. "3/10, net 30". The company anticipates that introduction of these new terms will reduce the average collection period to 36 days and additionally, will increase credit sales by €750,000, (no increase in cash sales is anticipated). Bad debts will remain at 1¼% of credit sales. At the present time, 30% of customers are taking the existing cash discount terms, while it is expected this will increase to 70% with the new credit terms. Annual total sales are currently €4.8 million. The opportunity cost of funds to Stark Ltd. is 10%. Cash sales account for 12½ % of total sales.

The contribution from sales after deduction of variable cost is low at 12%.

You are required to:

- (a) calculate the net effect on the company's pre-tax profit of proceeding with the new proposal (assume 360 days to the year).

and

indicate whether or not the company should proceed.

(15 Marks)

- (b) discuss the Management of Cash and also Marketable Securities.

(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.

Multiple Choice Questions

1. According to the shareholder wealth maximization goal, management should seek to maximize the _____ of the _____ to owners.
 - a. present value; expected pretax cash flows
 - b. future value; expected pretax cash flows
 - c. present value; expected future returns
 - d. future value; expected future returns

2. A major advantage of the corporate form of business over both sole proprietorships and partnerships is the
 - a. limited liability
 - b. reduction in taxes
 - c. ease of formation
 - d. ability to maintain ownership control

3. The default risk premium reflects the fact that
 - a. the premium remains constant over time
 - b. there is a positive relationship between risk and maturity
 - c. there is a positive relationship between default risk and required returns
 - d. the premium varies depending on the time to maturity

4. The fact that no investor can expect to earn excess returns based on an investment strategy using only historical stock price or return information is an example of _____ market efficiency.
 - a. strong-form
 - b. weak-form
 - c. semiweak-form
 - d. semistrong-form

Cont'd..

5. An annuity due is one in which
- payments or receipts occur at the end of each period
 - payments or receipts occur at the beginning of each period
 - payments or receipts occur forever
 - cash flows occur continuously
6. What will happen to the Security Market Line if: (1) inflation expectations increase, and (2) investors become more risk averse?
- shift up and have a steeper slope
 - shift down and have the same slope
 - shift down and have a steeper slope
 - shift up but have less slope
7. The objective in solving capital rationing problems is to:
- accept all projects with a PI greater than 1.1
 - maximize the IRR of the projects that are accepted
 - maximize the NPV of the projects that are accepted
 - minimize the opportunity cost of the firm's funds
8. An investment project requires a net investment of €100,000. The project is expected to generate annual net cash inflows of €28,000 for the next 5 years. The firm's cost of capital is 12 percent. Determine the payback period for the project.
- 0.28 years
 - 1.4 years
 - 3.57 years
 - 17.86 years

Cont'd..

9. A project requires a net investment of €450,000. It has a profitability index of 1.25 based on the firm's 12 percent cost of capital. Determine the net present value of the project.
- a. € 112,500
 - b. € 562,500
 - c. €1,012,500
 - d. € 140,625
10. For a company that is not planning to change its target capital structure, the proportions of debt and equity used in calculating the weighted cost of capital should be based on the current _____ weights of the individual components.
- a. book value
 - b. market value
 - c. replacement value
 - d. a and b
11. The Allegheny Valley Power Company common stock has a beta of 0.80. If the current risk-free rate is 6.5% and the expected return on the stock market as a whole is 16%, determine the cost of equity capital for the firm (using the CAPM).
- a. 14.1%
 - b. 7.6%
 - c. 6.5%
 - d. none of the above
12. What is the cost of equity for East Roon, if the firm is expected to always pay a constant dividend of €2.22? The firm's common stock is presently selling for €18.50.
- a. 8.3%
 - b. 12.0%
 - c. 10.2%
 - d. cannot be determined from the information given

Cont'd..

13. Determine the weighted cost of capital for the Mills Company that will finance its optimal capital budget with €120 million of long-term debt ($k_d = 12.5\%$) and €180 million in retained earnings ($k_e = 16.0\%$). Mills' present capital structure is considered optimal. The company's marginal tax rate is 40%.
(Compute answer to nearest 0.1%).

- a. 14.3%
- b. 12.6%
- c. 14.6%
- d. none of the above

14. Easy Rider Inc. sold a 15 year €1,000 face value bond with a 10 percent coupon rate. Interest is paid annually. After flotation costs, Easy Rider received €928 per bond. Compute the after-tax cost of debt for these bonds if the firm's marginal tax rate is 40 percent.

- a. 6.0%
- b. 7.2%
- c. 7.8%
- d. 6.8%

15. The contract period of an operating lease tends to

- a. be somewhat less than the economic life of an asset
- b. be equal to the economic life of the asset
- c. be somewhat greater than the economic life of the asset
- d. recover the full cost of the asset

16. A term loan in which the borrower is required to make a single principal payment at maturity while making periodic interest payments over the life of the loan is known as a(an) _____ loan.

- a. bullet
- b. balloon
- c. equity participation
- d. none of the above

Cont'd..

17. All other things being equal, a policy of financing its assets with a relatively _____ proportion of short-term debt will tend to result in _____ expected after-tax earnings for the firm.
- a. large, lower
 - b. constant, higher
 - c. constant, lower
 - d. large, higher
18. A firm's operating cycle is equal to its _____.
- a. inventory conversion period plus receivables conversion period
 - b. cash conversion cycle minus payables deferral period
 - c. a and b
 - d. none of the above
19. Zycad has sales of €110 million a year. If Zycad reduces their processing float by 3 days, what is the increase in the firm's average cash balance? Assume 365 days per year.
- a. €916,667
 - b. €904,110
 - c. €872,180
 - d. none of the above
20. Prestige Printers, Inc. a nationwide printing firm, sells personalized stationery 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 1000) at a price of €2.00 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 total annual inventory costs associated with stocking the economic order quantity.
- a. € 625
 - b. €1,768
 - c. €1,563
 - d. €2,500