CPA IRELAND | CERTIFIED PUBLIC ACCOUNTANTS

MANAGERIAL FINANCE

PROFESSIONAL 1 EXAMINATION - AUGUST 2017

NOTES:
Section A – Answer Question 1 and Question 2 and **either** Part A **or** Part B of Question 3.
Section B – Answer Question 4 and **either** Part A **or** Part B of Question 5.
Should you provide answers to both Parts A and B in Question 3 and/or Question 5, you must draw a clearly distinguishable line through the answer Part(s) not to be marked. Otherwise, only the first answer(s) to hand for each of these questions will be marked.

MANAGERIAL FINANCE TABLES ARE PROVIDED

TIME ALLOWED:
3 hours, plus 10 minutes to read the paper.

INSTRUCTIONS:
During the reading time you may write notes on the examination paper, but you may not commence writing in your answer book. **Please read each Question carefully.**

Marks for each question are shown. The pass mark required is 50% in total over the whole paper.

Start your answer to each question on a new page.

You are reminded to pay particular attention to your communication skills, and care must be taken regarding the format and literacy of your solutions. The marking system will take into account the content of your answers and the extent to which answers are supported with relevant legislation, case law or examples, where appropriate.

List on the cover of each answer booklet, in the space provided, the number of each question attempted.

NB: PLEASE ENSURE TO ENCLOSE YOUR ANSWER SHEET TO QUESTION 4 IN THE ENVELOPE PROVIDED.

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGERIAL FINANCE

PROFESSIONAL 1 EXAMINATION – AUGUST 2017

Time allowed 3 hours, plus 10 minutes to read the paper.

SECTION A
(Answer Questions 1 and 2 and either Part A or Part B of Question 3)

1. You have been asked to assist in the preparation of a business plan for Ms DC who has gathered a large amount of data regarding a proposed venture involving the packaging and distribution of a food supplement product. She intends to commence trading on 1 January 2018 as DC Limited. The start-up capital required for the initial investment in equipment and motor vehicles will be financed by debt and equity in a proportion of 4:1.

The debt capital will consist of a long term bank loan (received on the first day of trading) with a moratorium on capital repayments for the first year. The bank loan interest will be charged at 7.5% per annum payable quarterly in arrears (i.e. on the first day of the following quarter). The total annual interest charge will be based on the balance outstanding at the start of the year. The equity capital will also be introduced on 1 January 2018.

The equipment will cost of €198,000, and two motor vehicles costing €27,600 each will be acquired and paid for on the first day of trading. The equipment will be written off over three years and the motor vehicles will be depreciated at 25% per annum on a reducing balance basis.

A feasibility study grant of €11,400 will be received in the fourth month of trading. This amount represents 40% of the total cost of the study which will be paid in February 2018. The net cost of this study should be charged as an expense in the first year of trading. A start-up grant of €63,000 will be received on 1 January and will be amortised over three years.

Details of expected sales and credit terms are as follows:

- Total sales for Quarter 1 will be €216,000 priced at €240 for each unit. There is an expected 40% increase in the number of units sold in the second quarter but there will be no change in selling price. For Quarter 3, it has been forecasted that the units sold will increase by 10% and will remain at that level in the following quarter. The selling price will increase by 25% in Quarter 3 but will decrease in Quarter 4 by 15%.
- Throughout the year, 30% of sales will be to cash customers.
- It may be assumed that all sales will occur evenly throughout each quarter.
- Standard credit terms will be two months. 75% of the amounts that should be collected from credit customers each quarter will be received on time. The remainder of the credit sales outstanding will be received in the following quarter.

The company can expect to trade at a mark-up of 150%. On 1 January, the company will buy materials sufficient for the sales of the first three months plus extra 'safety stock' to supply materials for January's sales. The purchasing policy for the remainder of the year will be to acquire materials sufficient for the next three months on the first day of each quarter. The company has negotiated credit terms of one month with its trade suppliers.

Other information relating to first year of trading that has been provided to you includes:

- Net wages will be paid on the last day of each month. These will consist of a €7,700 per month salary for Ms DC as managing director of the company, and €2,950 for each of the four employees. The statutory deductions will be paid one month after the relevant wages will be paid. The deductions are calculated as 35% of the gross wages each month.
- The company will rent a premises commencing on the first day of trading for an annual charge of €125,400. Rent for each three month period will be paid in advance on the first day of each quarter. A deposit amounting to rent for two months will be paid on the first day of occupancy.

- It has been estimated that fixed costs (excluding the wages and rent figures described above) will amount to €15,120 per month. This figure does include the depreciation charged each month. The relevant amount of these costs will be paid one month in arrears.
- A dividend will be paid four months after the year end amounting to 5% of the Equity introduced.

NOTE: *You may ignore Value Added and Corporation Tax considerations.*

REQUIREMENT:
Prepare extracts from a report that will form part of a business plan for DC Limited in the order specified below for the first year of trading. Present each item on a separate page with any workings shown on separate pages at the end of the report.

(a) A forecasted cash-flow for each of the four quarters for the first year of trading. Clearly identify the closing cash balance at the end of the year.

(9 marks)

(b) A forecasted trading and income statement for the total of the year ending 31 December 2018. Clearly identify the profit retained for the year.

(8 marks)

(c) A forecasted Statement of Financial Position as at 31 December 2018. Clearly identify the total equity for the company at the end of the year.

(8 marks)

[Total: 25 Marks]

2. H Plc is a holding company that owns and controls a number of other publicly quoted companies. The Board of Directors is currently reviewing its methods for estimating the cost of capital and the dividend policy for two of its subsidiaries. Details relating to these companies are provided below.

J Plc
Extracts from the Statement of Financial Position at 30 June 2017.

	€ million
Ordinary Shares (issued at €0.50 each)	9,600
6% Preference Shares (issued at €1 each)	7,900
4.8% Debentures (issued at €1 each)	6,400

The ordinary shares for this company are currently quoted at €0.72 per share (cum dividend). The most recently declared ordinary dividend was for €0.20 per share and this amount will be paid in the very near future. Your investigations have revealed that an ordinary dividend of €0.21 will be paid based on the next financial year's profits and the directors have confirmed that, for the foreseeable future, the company intends to sustain this rate of dividend growth.

The preference shares currently trade at €0.80 per share. There is no preference dividend owing at this point in time.

The debentures are irredeemable and currently trade at 120% of their nominal value.

K Plc
For its most recent year end, this company reported a profit after tax of €540 million. K Plc operates in a stable market and based on its existing strategy this level of profit is expected to continue into the foreseeable future with no growth forecasted. The current dividend payout ratio is 60% and the cost of equity for this company has recently been calculated at 7.5%.

Recently, a new senior management team has proposed two alternative strategies that would impact on the growth rate in profits, the return required by the holders of equity shares and the dividend payout ratio. The implications of these proposed changes are summarised below.

Proposed Strategy	**Growth Rate in Profits**	**Return Required by Ordinary Shareholders**	**Dividend Payout Ratio**
	%	**%**	**%**
1	5	9	20
2	8	11	40

REQUIREMENT:

(a) Prepare a table that shows the estimated cost of capital for each of the three sources of finance, and the weighted average cost of capital for J Plc. Your answers should be calculated to two decimal places. Any workings should be shown on separate pages.

(7 marks)

(b) Prepare a table that shows the estimated market value of equity for K Plc that would result from adopting each of the three strategies (Current; Proposed 1; and Proposed 2). Your answers should be calculated to the nearest million euro. Any workings should be shown on separate pages.

(7 marks)

(c) Critically analyse the proposed dividend policy strategies for K Plc. (6 marks)

[Total: 20 Marks]

3. Answer either Part A OR Part B.

In a series of documents published by Enterprise Ireland earlier this year, the critical importance for Irish companies to engage in planning and preparation as soon as possible in order to meet the challenges presented by Brexit was highlighted.

In relation to finance, Enterprise Ireland has stated that:

Navigating through and beyond Brexit successfully will require strong financial management and exchange rate volatility is the key challenge to be faced in the short to medium term.

Currency risk is a factor that Irish exporters have been dealing with for decades in trading with the UK. However, the rapid and recent change in currency value is different and more serious than that experienced during the major depreciation of sterling in the late 2000s.

The increased exchange rate cost cannot be passed onto the consumer which makes Irish goods and services less attractive relative to their peers in the UK market.

In addition to managing currency risk, it is important for Irish companies to track and manage their income and expenditure [and assets and liabilities] in light of Brexit. They also need to embed a strategic financial management focus in their leadership teams to anticipate future challenges and opportunities.

Part A
REQUIREMENT:
Critically appraise the strategies that Irish SMEs affected by Brexit can employ in the short and medium term to address the challenge of exchange rate volatility that has arisen.

[Total: 15 Marks]

OR

Part B
REQUIREMENT:
The Accounting Rate of Return (calculated as Average Accounting Profits divided by the initial investment) is a method employed by many companies to evaluate projects. Discuss its uses and limitations along with those of the Internal Rate of Return, and other methods of investment appraisal for firms that wish to maximise shareholder wealth.

[Total: 15 Marks]

SECTION B
Answer Question 4 and either Part A OR Part B of Question 5.

4. The following multiple-choice question contains eight sections, each of which is followed by a choice of answers. Only one answer is correct in each case. Each question carries equal marks. On the answer sheet provided indicate for each question, which of the options you think is the correct answer. Marks will not be awarded where you select more than one answer for any question.

INFORMATION RELEVANT TO PARTS 1 AND 2 ONLY

You have extracted the following information from Financial Statements of W Limited as at 31 July 2017.

Gross Profit	€135 million
Inventory	€25 million
Payables	€43 million
Receivables	€53 million
Gross Margin	30%

1. Based on the information provided above, rounded to the nearest day, what is the operating cycle in days (also known as the 'cash conversion cycle')?

(a) 21 days
(b) 35 days
(c) 71 days
(d) None of the above.

2. The only other Current Asset of W Limited is cash and bank of €15 million and the company has no other current liabilities. The main competitor of W Limited has a current ratio of 1.5:1. Which of the following statements are correct in relation to its working capital management (WCM) policy?

(i) In comparison to its competitor, W Limited has a more aggressive WCM policy.
(ii) In comparison to its competitor, W Limited is more likely to have lower profits.
(iii) In comparison to its competitor, W Limited is more likely to have better liquidity.

(a) Statements (i) and (ii) only
(b) Statements (i) and (iii) only
(c) Statements (ii) and (iii) only
(d) None of the combinations listed above.

3. In relation to the implications of different working capital management (WCM) policies, which of the following statements are correct?

(i) Profitability varies inversely with liquidity.
(ii) Risk and liquidity are positively correlated.
(iii) Risk and profitability are positively correlated.

(a) Statements (i) and (ii) only
(b) Statements (i) and (iii) only
(c) Statements (ii) and (iii) only
(d) None of the combinations listed above.

4. In relation to the implications of different working capital management (WCM) policies, which of the following statements are correct?
(i) Assuming that profits remain unchanged, a change to a conservative WCM policy will result in a decrease in return on total assets.
(ii) A 'Hedging Approach' to WCM will lead to the funding of current assets with short-term financing.
(iii) A decrease in the credit period from trade payables will decrease a firm's working capital requirements.

(a) Statements (i) and (ii) only
(b) Statements (i) and (iii) only
(c) Statements (ii) and (iii) only
(d) None of the combinations listed above.

5. The annual holding cost for a product is 15% of the purchase price. The cost per order is €36. Based on total annual demand, the total cost of purchases for a product is €1,296,000 at €180 per unit. Using this information, the Economic Order Quantity (rounded to the nearest unit) is:

(a) 119 units
(b) 129 units
(c) 139 units
(d) None of the above.

6. The current market price of a company's stock is €2.80 per share. Its Statement of Financial Position shows that there are 32 million shares in issue. The company is financed entirely by equity and it now intends to raise €5 million through a rights issue with a subscription price of €2.50 per share. The funds will be used to invest in a project with a net present value of €1.2 million.

Assuming a strong form of market efficiency and the availability of full reliable information for investors, what is the anticipated market price per share (rounded to the nearest cent):

(a) €2.82
(b) €2.87
(c) €2.92
(d) None of the above.

INFORMATION DIRECTLY RELEVANT TO PARTS 7 AND 8 ONLY

Details for Contract Z

Labour	**€**
Category 1 (180 hours at €12 per hour)	2,160
Category 2 (525 hours at €16 per hour)	8,400
Category 3 (215 hours at €27 per hour)	5,805
Materials	
Type1 (90 kg at €50 per kg)	4,500
Type 2 (150 litres at €20 per kg)	3,000
TOTAL	23,865

Other information:

- Due to the cancellation of another contract, all of Category 1 staff members are currently idle.
- If Contract Z proceeds, it would be necessary to recruit new Category 2 staff. The Recruitment Agency fees will amount to 15% of the cost of the staff hired.
- Category 3 staff are highly skilled and would be diverted from another contract that earns €54 per unit which takes four hours (per unit) of Category 3 staff time.
- At present, there is 30 kg of Material Type 1 in stock. The original cost of this material was €50 per kg and could be realised as scrap for €35 per kg. The current replacement cost is €56 per kg. Material Type 1 has not been used by the company for a considerable period of time.
- There is currently 40 litres of Material Type 2 in stock and this could be sold as scrap for £11 per litre. Previously the company paid €20 per litre for this material. If purchased now, it would cost €23 per litre. Material Type 2 is used by the company for many products and other contracts.

7. Based on the information provided above, what is the relevant cost of labour for Contract Z?

(a) €15,465
(b) €17,787
(c) €19,947
(d) None of the above.

8. Based on the information provided above, what is the relevant cost of materials for Contract Z?

(a) €7,410
(b) €7,510
(c) €7,860
(d) None of the above.

[Total: 20 Marks]

5.

Answer either Part (A) OR Part (B)

Part (A)

CM Plc owns a large number of companies in a range of industries but is now reviewing its previous strategy of diversification. In order to focus on its main business, CM Plc plans to sell some of its subsidiaries including SB Limited. You are part of a project team that has been asked to provide recommendations on the value of this company. Extracts from the financial statements of SB Limited are provided below.

Y/e 31 May	**2013**	**2014**	**2015**	**2016**	**2017**
	€000	**€000**	**€000**	**€000**	**€000**
Profits Before Interest and Tax	1,220	1,095	1,250	1,540	2,730
Interest Expense	490	185	220	245	335

Extracts from the Statement of Financial Position as at 31 May 2017

	€ 000
Non-Current Assets	
Land & Buildings	9,150
Plant & Equipment	6,280
Intangibles	1,400
Total Non-Current Assets	**16,830**
Current Assets	
Inventory	1,485
Receivables	4,125
Cash and Cash Equivalents	4,670
Total Current Assets	**10,280**
Current Liabilities	
Payables	1,040
Other Liabilities	3,810
Total Current Liabilities	**3,850**
Non-Current Liabilities	
Long-term Bank Loans	3,170
Pension Obligations	1,680
Other Provisions	5,800
Total Non-Current Liabilities	**10,650**

Also included in the Statement of Financial Position under the heading of Equity, is a figure of €4.8 million for redeemable preference shares. An attached note reveals that these shares will be redeemed in the forthcoming year.

In the course of your investigations, it was discovered that a firm of independent consultants has completed research that revealed the following:

- The land & buildings had been acquired in 2010 and have increased in value by 60% from the amount shown in the Statement of Financial Position.
- The net book value of the plant & equipment has been overstated by €780,000.
- The figure for Intangibles refers to the value of a patent registered by the company directors. The independent consultants have found that this figure should be reduced by 80%.
- Included in the figure for inventory is €295,000 that refers to damaged goods that have a net realisable value €100,000.
- 20% of the amounts owing by the credit customers are uncollectable.
- Pension obligations refers to a defined benefit scheme that is currently underfunded by €390,000.
- Arising from a favourable outcome relating a legal claim against the company, the figure for other provisions should be decreased by 30%.

In order to arrive at a consistent basis for the valuation of the company the following issues have been agreed by the directors of both companies:

- The revenues for the most recent financial year should be reduced by €745,000. Only this write off and those in respect of inventory and receivables should be charged to the adjusted profit figures.
- All other changes in market values to balance sheet items should reduce equity directly without affecting income statement figures.
- A corporation tax rate of 20% should be applied to profits before tax both before and after adjustments.
- A valuation multiple of 6 should be applied to the five year average Profit Before Interest and Tax figures both before and after adjustments.
- Quoted companies operating in the same industry as SB Limited currently have an average PE ratio of 15 but this should be reduced by 40% for the valuation of a smaller unquoted company. This will apply to the 5 year average profit after tax figures both before and after adjustments.
- When applying the net asset basis of valuation, a multiple of 1.4 should be applied before adjustments and 1.0 after adjustments.

REQUIREMENT:

(a) Show the extracts from a report for the directors of CM Plc that presents a Table with the estimated valuations both before and after the adjustments described above. Note that the results of your calculations only should be shown in the table. Any workings should be shown on separate pages. The following methods should be used:

(i) The net asset basis
(ii) Profit before interest and tax multiple
(iii) The P/E basis. (15 marks)

(b) Advise the Directors of CM Plc on the minimum price they should accept for the sale of SB Limited and provide a brief critical appraisal of the methods used.

(5 marks)

[Total: 20 Marks]

OR

Part (B)
Writing in the Harvard Business Review in 1982, David W. Mullins stated:

The capital asset pricing model (CAPM) is an idealized portrayal of how financial markets price securities and thereby determine expected returns on capital investments. The model provides a methodology for quantifying risk and translating that risk into estimates of expected return on equity.

REQUIREMENT:
Discuss this quote in the context of the current environment for global capital markets. Your discussion should incorporate a critical analysis of the CAPM and the elements of this model.

[Total: 20 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGERIAL FINANCE

PROFESSIONAL 1 EXAMINATION – AUGUST 2017

SOLUTION 1

(a) **DC Limited**

Quarterly Forecast Cash Flow **for the y/e31st December 2018**

	Q1	Q2	Q3	Q4	Total
Inflows	€	€	€	€	€
Cash Sales	64,800	90,720	124,740	106,029	386,289
Credit Sales	37,800	141,120	221,445	266,915	667,280
Equity Capital Introduced	50,640				50,640
Bank Loan	202,560				202,560
Govt. Grants	63,000	11,400			74,400
Total Inflows	**418,800**	**243,240**	**346,185**	**372,944**	**1,381,169**
Outflows					
Equipment	198,000				198,000
MVs	55,200				
Payments to Suppliers	86,400	109,440	151,200	149,688	496,728
Net Wages	58,500	58,500	58,500	58,500	234,000
Deductions from Wages	21,000	31,500	31,500	31,500	115,500
Fixed Costs	16,940	25,410	25,410	25,410	93,170
Rent	31,350	31,350	31,350	31,350	125,400
Rent - Deposit	20,900				
Loan Interest Paid		3,798	3,798	3,798	11,394
Feasibility Study	28,500				
Total Outflows	**516,790**	**259,998**	**301,758**	**300,246**	**1,378,792**
Net Cash Flow	(97,990)	(16,758)	(44,427)	72,698	2,377
Opening Balance	0	(97,990)	(114,748)	(70,321)	0
Closing Balance	**(97,990)**	**(114,748)**	**(70,321)**	**2,377**	**2,377**

Marking Scheme Part (a)

Layout	1 mark
"Cashflows" from:	
Workings (1 + 2)	2 marks
Working (3)	2 marks
Working (6)	1 mark
Working (9)	2 marks
Other	1 mark
Total	**9 Marks**

(b) DC Limited Forecast Trading and Income Statement for the period ending 31st December 2018

	€	€	Marks
Sales (W1)		1,287,630	1
less: COS			
Purchases (W3)	543,852		1
less: Closing Inventory (balancing figure)	(28,800)		
less: Cost of Sales (40% of Sales)	515,052	515,052	0.5
Gross Profit (60% of Sales)		772,578	0.5
Add: Grant Amortisation		21,000	
		793,578	0.5
less: Expenses			
Total Net Wages	234,000		0.5
Total Deductions	126,000		0.5
Fixed Costs	101,640		0.5
Rent	125,400		0.5
Feasibility Study (net cost)	17,100		0.5
Interest: Loan	15,192		0.5
Interest: Overdraft	7,368		0.5
Depreciation	79,800		0.5
Total Expenses		706,500	
Net Profit / Loss		**87,078**	
less: Dividend		2,532	
Profit Retained		**84,546**	0.5
			8

(c) **DC Limited**
Forecast Balance Sheet as at 31st December 2018

	€	€	€	
	Cost	**Deprec. / Amortis.**	**NBV**	
Fixed Assets				
Equipment	198,000	(66,000)	132,000	
Motor Vehicles	55,200	(13,800)	41,400	
	253,200	(79,800)	173,400	1
Current Assets				
Inventory / Stock	28,800			
Prepaid Rent	20,900			
Receivables / Debtors (W4)	234,061			
Bank	2,377			
		286,138		2
Less: **Current Liablilities**				
Payables / Creditors (W3, €141,372/3)	47,124			
Accruals:				
Wages Deductions	10,500			
Loan Interest	3,798			
O/D interest	7,368			
Fixed Costs	8,470			
Dividend Owing	2,532	(79,792)		
Net Current Assets / Liabilities			206,346	2
			379,746	
Deferred Credit: Grant			42,000	
Long Term Liabilities				
Bank Loan			202,560	
NET ASSETS			135,186	2
Equity				
Equity Capital Introduced			50,640	
Net Profit / Loss			84,546	
EQUITY			135,186	1
				8

DC Limited
Workings **Sales**

W1

	Units	SP per unit €	Sales €
Quarter 1	900	240	216,000
Quarter 2	1,260	240	302,400
Quarter 3	1,386	300	415,800
Quarter 4	1,386	255	353,430
Total			**1,287,630**

W 2	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Sales	216,000	302,400	415,800	353,430	1,287,630
Cash Sales (Sales x 30%)	64,800	90,720	124,740	106,029	
Credit Sales: (Sales x 70%)	**151,200**	**211,680**	**291,060**	**247,401**	**901,341**
Collectable each Quarter (1/3rd)	50,400	70,560	97,020	82,467	
Collectable following Quarter (2/3rd)		100,800	141,120	194,040	
Collectable each Quarter	**50,400**	**171,360**	**238,140**	**276,507**	
Forecast to be Collected:					
On time (75%)	37,800	128,520	178,605	207,380	
One month late (25%)		12,600	42,840	59,535	
Total Inflows - Credit Sales	**37,800**	**141,120**	**221,445**	**266,915**	**667,280**

W3	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Purchases					
(40% of Sales)	86,400	120,960	166,320	141,372	
Safety Stock Purchased in Jan.:					
(Q1 Sales/3) x 40%					
(216,000 / 3) x 40%	28,800				
Total Purchases	**115,200**	**120,960**	**166,320**	**141,372**	**543,852**
Payable each Quarter (2/3rd)	57,600	80,640	110,880	94,248	
Payable following Quarter (1/3rd)		28,800	40,320	55,440	
Safety Stock:					
(Purchased in Jan. Paid in Feb.)	28,800				
Payments to Suppliers	**86,400**	**109,440**	**151,200**	**149,688**	**496,728**

W4

Receivables / Debtors		€
Total Sales (W1)		1,287,630
% of Sales on Credit (see ques)	x	70%
Total Credit Sales		901,341
less: Total Inflows from Credit Sales (W2)		(667,280)
Amount Owing by Receivables		**234,061**

W5

Payables / Creditors	
Total Purchases (W3)	543,852
less: Total Amounts paid to Suppliers	(496,728)
Amount owing to Suppliers	**47,124**

W6

Equipment, MVs, Loan and Interest		€			
Cost of MVs		55,200	2	x	€27,600
Cost of Equipment		198,000			
		253,200			
Percentage financed by loan	x	80%			
Amount of loan:		202,560			
Interest rate	x	7.5%			
Total Interest Expense		15,192			
Interest Paid		(11,394)			
Interest owing		3,798			

W7

Wages and Deductions	€
Director's Net Salary	92,400
Employees' Net Wages	141,600
Total Net Wages	234,000
Gross Wages	360,000
Total Deductions	126,000
Deductions paid	115,500
Deductions owing	10,500

W8

Depreciation & Establishment Costs

Depreciation	**Equipm.**	**MVs**	**Total**
	€	€	€
Cost			
Equipment	198,000		198,000
MVs (27,600 x 2)		55,200	55,200
	198,000	55,200	253,200
Annual Depreciation			
Equipment (198,000 x 1/3)	66,000		66,000
MVs (55,200 x 25%)		13,800	13,800
Annual Depreciation	66,000	13,800	79,800
Quarterly Depreciation	16,500	3,450	19,950

W9	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Fixed Costs					
Total Fixed Costs (15,120 x 3)	45,360	45,360	45,360	45,360	181,440
Less:					
Depreciation included each Qtr.	19,950	19,950	19,950	19,950	79,800
Relevant Fixed Costs	25,410	25,410	25,410	25,410	101,640
Payable each Quarter (2/3rd)	16,940	16,940	16,940	16,940	
Payable following Quarter (1/3rd)		8,470	8,470	8,470	
Payments for Fixed Costs	**16,940**	**25,410**	**25,410**	**25,410**	**93,170**

SOLUTION 2

EF Plc

(a)

Capital Source	MV €m	MV Weights	Cost of Each Source	Weighted Cost	
Ordinary Shares	13,440	0.489795918	8.00%	3.92%	2
Preference Shares	6,320	0.2303207	7.50%	1.73%	2
Irredeemable Debentures	7,680	0.279883382	3.50%	0.98%	2
Total	27,440	1.0000		6.63%	1

(Proportionate marks awarded for workings) 7

Workings:

$$Ke = \frac{Do\ (1 + g)}{(MV\ E\ cum\ div - Do)} + g$$

$$= \frac{0.02\ (1 + 0.05)}{(0.72 - 0.02)} + 0.05 \qquad 0.0210 \quad 0.70$$

$$= 0.03 + 0.05$$

$$= 0.08 \text{ or } 8.00\%$$

$$g = \frac{D1 - Do}{Do}$$

$$= \frac{0.021 - 0.020}{0.02}$$

$$= 0.05$$

$$Kd = \frac{Interest\ (1 - t)}{(BV\ D\ ex\ div \times Val.\ Factor)}$$

$$= \frac{307.2\ (1 - 0.125)}{(6400 \times 1.20)} \qquad 268.8$$

$$= 0.035 \text{ or } 3.50\%$$

$$Kps = \frac{Div\ per\ Share}{MV\ PS\ ex\ div}$$

$$= \frac{(\%\ Rate \times Total\ Value / No\ of\ Pref\ Shares)}{MV\ PS\ ex\ div}$$

$$= \frac{(6\% \times 7{,}900m / 7{,}900\ m)}{0.8}$$

$$= 0.075 \text{ or } 7.50\%$$

(b)

STRATEGY	**MV €m**	
Current	4,320	2
Proposed Strategy 1	2,835	2.5
Proposed Strategy 2	7,776	2.5
	(Proportionate marks awarded for workings)	7

Workings:

$$MV = \frac{Do\ (1+g)}{(r-g)}$$

Current Strategy

$$MV = \frac{324.0\ (1+0)}{(0.08-0)}$$

$$= €4{,}320 \text{ million}$$

Proposed Strategy 1

$$MV = \frac{108.0\ (1+0.05)}{(0.09-0.05)}$$

$$= €2{,}835 \text{ million}$$

Proposed Strategy 2

$$MV = \frac{216.0\ (1+0.08)}{(0.11-0.08)}$$

$$= €7{,}776 \text{ million}$$

(c) Critical analysis of proposed dividend policies

The company is focussing on the expected change in its market value based on alternative dividend policies. This implies reliance on the dividend valuation model incorporating growth estimates.

The current strategy payout ratio of 60% is extremely high and this may not be sustainable.

Proposed Strategy 1 would mean a reduced dividend payout ratio of 20%. This would result in higher levels of retained profits but based on the assumed modest 5% growth rate in profits, it appears that this extra equity capital would not be reinvested in profitable and cash generating projects. Combined with the increased return (9%) required by equity shareholders, this proposed strategy results in the lowest estimated market value.

Proposed Strategy 2 is a more aggressive policy with an 8% growth rate in profits and intends to have a more generous 40% dividend payout ratio. The concerns about the riskiness of the strategy are reflected in the increased (and very high) 11% return expected by the ordinary shareholders. However, when all of these factors are taken into consideration, based on the dividend (with growth) valuation model, this proposed strategy will result in the highest market value.

1 Mark per valid point properly stated
(Max. 6 x 1 mark each)
6

[Total: 20 Marks]

SOLUTION 3

Part A

Critically appraise the strategies that Irish SMEs affected by Brexit can employ in the short and medium term to address the challenge of exchange rate volatility that has arisen.

Writing in the CPA magazine (Accountancy Plus) in September 2016, Mark Fielding noted that currency rate (especially sterling) volatility arising from Brexit was the most significant factor impacting on Irish SMEs.

Currently (August 2017), the details regarding the outcomes from Brexit have not been finalised. The negotiations between Britain and the EU are complex and are outside of the control of Irish SMEs. It is difficult to predict the full consequences, but all Irish companies should assess their current position and potential exposure to various scenarios that may emerge. The preferred short-term strategy by many firms is one of 'wait and see' but that could lead to serious adverse consequences in the medium term.

The potential outcomes from Brexit can be seen as a macroeconomic factor which should be an integral part of analysing a company's systematic risk. Given that many Irish SMEs are undercapitalised and are vulnerable to even minor fluctuations in consumer demand and input prices, this is a very important task for the owners and managers of smaller firms and their financial advisors. This is urgent in the short term and is of tactical and strategic importance in the medium and long term.

The current volatility in exchange rates arising from Brexit may or may not continue, but the associated risk is relevant not only to SMEs exposed because of direct trade with UK customers and/or suppliers, but to all Irish firms to a greater or lesser extent. This is because a comprehensive and detailed assessment of Brexit (including the associated fluctuations in exchange rates) should include consideration its impact not only on the SME itself, but also on its customers and suppliers and their stakeholders. If an Irish SME does not trade directly with the UK, in the short term management may believe that there are no consequences. However, if the assessment is extended to consider how the uncertainty regarding exchange rates could affect the small firm's suppliers and customers, then a different picture may emerge. For instance, if the customers of an Irish SME are involved in the export of goods or services to the UK, an adverse movement in the euro – sterling rate could have an adverse impact for all firms in that extended supply chain in the medium term.

Having critically analysed the potentially serious negative consequences of the prevalent 'wait and see' strategy, other short and medium-term responses are now briefly considered:

•Hedging – it is possible to hedge away large portions of any potential adverse movements in currency but this can be expensive and managers of firms should be aware that these transactions are treated by financial institutions as 'lines of credit' and therefore stringent credit assessment procedures will apply that make it difficult for many Irish SMEs.
•Forward Contracts – a rate can be agreed that will apply on a future date. For exporters this will mean that the amount of receipt will be known in advance. For importers, the uncertainty regarding the amount payable to the sterling supplier is removed. The major disadvantage is that no benefit will be received from any possible favourable movement in the exchange rate.
•Options – this type of instrument grants the right (but not the obligation) to buy or sell currency at an agreed rate. This means that an Irish SME could share in the upside arising from a favourable change in currency exchange rates. However caution should be exercised because it can be difficult to construct the details of these arrangements in order to ensure the optimum balance of risk reduction and potential gain. In effect it is a type of an insurance arrangement which can be quite expensive.

1 Mark for each properly stated valid point (max 10)	(10 x 1)	10
5 Marks for expression and coherence of appraisal		5

[Total: 15 Marks]

Part B

Discussion of the uses and limitations of ARR, IRR and other methods of investment appraisal for firms that wish to maximise shareholder wealth.

The standard assumption underlying the investment appraisal methods in managerial financeis that the objective of the firm is to maximise shareholder wealth. This means that the financial consequences for shareholders take priority over the concerns of other stakeholders. This does not mean that the desired outcomes for various stakeholders such as (suppliers, customers, employees etc.) are diametrically opposed to shareholder wealth. For instance if a firm invests in a profitable and cash generating project then this should mean not only an increase in share value but should also lead to prompt payments for suppliers, continuity of supply for customers and job security for employees.

However, it should also be noted that other practices that would be assessed in a positive light by the techniques described below, may not lead to desired outcomes for other stakeholders. Furthermore, they may also have long-term negative impacts on shareholder wealth. An example of this would be a firm that invests in a project that leads to increased sales, profits, cash and a short-term increase in share value. But if the project involved unethical and illegal work practices then stakeholders such as employees that were being exploited would be adversely affected. This highlights a major limitation of the various methods described below – they do not (on their own) take into account the wider business and social issues. Furthermore, their use to justify investment in this type of a project could lead to a reduction in shareholder wealth in the longer term, For instance, if the illegal practice became known to the relevant legal and regulatory bodies, there could be an negative impact on the company's reputation, brand image, sales and cash flows arising from adverse publicity and the payment of fines etc.

These are some of the fundamental issues that should be considered in the context of a full understanding of the aim of maximising shareholder wealth. From a basic, financial perspective, the main methods and their uses and limitations are outlined below.

- Payback As the name suggests, this method focuses on the length of time a project takes to pay back its initial investment. It is widely applied in the initial stages of appraisal and is useful because it gives (if the calculations are reasonably accurate) an easy to understand metric that can be a useful means of comparison with other proposed investments. Its major limitation is that the method ignores cash flows that occur outside of the payback period. This method ignores the time value of money but this can be overcome by use of a discounted payback method.

- ARR (Accounting Rate of Return) This method uses average expected accounting profits as the basis for estimating a percentage rate of return for proposed projects. This can be used as a method of comparing the benefit of investing in the project to the safer alternative such as a Government Bond or deposit account etc. Since if relies on accounting profits, there is the possibility of making an incorrect investment decision because cash flows may occur at significantly later time periods and it also ignores the time value of money.

- IRR (Internal Rate of Return) This is the discount rate at which the project will break even so that the investment amount is repaid. In other words, it is the rate at which NPV (see below) is zero. If the IRR value is less than the cost of capital, then the project should be rejected. This method is used by many large organisations and by financial institutions because it takes into account the time value of money and provides a figure that indicates the percentage return on investment. There are some mathematical limitations to the IRR method due to the timing of the cash flows which means that it may give a result that conflicts with the NPV method.

- NPV (Net Present Value) This method takes into account the time value of money and estimates the difference between the present value of cash inflows and the present value of cash outflows. NPV is widely used in capital budgeting to analyze the impact of a proposed investment on company cash flows. Major limitations of this method include the investigations required for the identification of all relevant cash flows and their accurate estimation. Some (especially smaller) organisations may find it time consuming and costly to gather the necessary information. Another difficulty that limits the effective application of this method is the complex nature of estimating the risk factors that will be included in the discount rate. Mindful of the limitations of all financially based investment appraisal methods, every effort should be made to use the NPV technique because if estimates are accurate and are applied correctly, the resulting figure should equate to the projected increase or decrease in shareholder wealth.

1 Mark for each properly stated valid point (max 10)	(10 x 1)	10
5 Marks for expression and coherence of appraisal		5

[Total: 15 Marks]

SOLUTION 4

1	**A**
2	**C**
3	**B**
4	**D**
5	**C**
6	**A**
7	**B**
8	**C**

Workings:

Part 1

		€m
Sales	100%	450
COS	70%	315
GP	30%	135

	€m	**DAYS**
Inventory	25.0	28.97
Receivables	53.0	42.99
Payables	43.0	(49.83)
Operating Cycle		**22.13**

Part 2
Current Ratio for W Limited = (25 + 53)/43 = 1.8:1.

This is a more conservative policy working capital policy than its competitor which has a Current Ratio of 1.5. With a relatively higher investment in Receivables and Inventory, W Limited will have lower profits because of a greater likelihood of bad debts, storage costs etc. However, the higher level of Current Assets will result in superior liquidity.

Statement (i) is incorrect.
Statements (ii) and (iii) are both correct.

Part 3
Statements (i) and (iii) are both correct.
Statement (ii) is incorrect.

Part 4
Statement (i) is correct.
Statement (ii) is incorrect.
Statement (iii) is incorrect.

Part 5

$$EOQ = \sqrt{[\,2\,(\text{Annual Demand})\,(\text{Cost per Order})\,] \;/\; (\text{Annual Holding Cost})}$$

$$EOQ = \sqrt{[\,2\,(7{,}200)\,(36)\,] \;/\; (180 \times 15\%)}$$

$$EOQ = \sqrt{[\,518{,}400\,] \;/\; 27}$$

$$EOQ = \sqrt{19{,}200} = 138.56$$

Part 6

		No. of Shares
Existing		32.0 million
Rights Issue:		
	(5 million / 2.50) =	2 million
No. of shares in issue after the Rights Issue		34.0 million

Anticipated Value of Company:

		€ m
Existing value	(2.8 x 32)	89.6
+ New funds		5.0
+ NPV of new project		1.2
Total Anticipated Value		95.8

Anticipated Value per Share:

		€	
	(95.8 / 34.00) =	2.82	per share

Part 7: Labour

Category 1: This cost is not relevant because the staff members are currently idle and can therefore be employed on Contract Z with no incremental cost.

Category 2: Since this category of staff would be recruited specifically for the proposed project, the relevant costs are the actual staff costs plus the recruitment Agency fees.
[€8,400 +(€8,400 x 15%)] = €9,660

Category 3: These existing members of staff would have to be diverted away from a contract that is currently generating contribution and this lost contribution (an opportunity cost) is relevant in addition to the actual cost of the staff.

The contribution forgone is: €54 x 43 units =	€2,322	
(215 hours/5 hours = 43 units of lost contribution)		
Direct Cost: 215 hours at €27/hour =	€5,805	
Total Relevant Cost (Category 3)		€8,127
The total relevant labour cost = €9,660 + €8,127 =		**€17,787**

Part 8: Material

Type 1
The 30 kg in stock will be used for the contract. However, the company will no longer
be able to sell this 30 kg for scrap proceeds of: 30 kg x €35 = €1,050. This represents an opportunity cost.
The balance of the materials required (90 kg – 30 kg) = 60 kg would be purchased at the current replacement cost of €56 per kg: 60 kg x €56 = €3,360.
Total relevant cost of Type 1 material: (€1,050 + €3,360) = €4,410

Type 2
The company can use the 40 litres from the existing stock, but since this material is in use for other products and contracts, this amount would need to be replenished at the current replacement cost of €23 per litre. The balance of the material required would also have to be purchased at this cost. Therefore all of the material for would be purchased at €23 per litre.
Total relevant cost of Type 1 material: (150 x €23) = €3,450
The total relevant material cost = €4,410 + €3,450 = €7,860

SOLUTION 5

Part (A)

(a)
Extracts from report
TO: Directors of CM Plc
FROM: CPA Financial Consultant

RE: Valuation of SB Limited **MARKS**

ESTIMATED VALUATIONS	**Prior to Adjustment**	**Post Adjustment**	
Method	**€000s**	**€000s**	
Net Assets	10,934	11,730	6
PBIT	9,402	7,284	4
PAT	9,162	6,615	4
			14
Format & Presentation			1
(proportionate marks awarded for workings)			
			15

(b)

Rationale
1 mark per each valid point provided it is properly stated and recognises that price is subjective and supported with appropriate justifications. Assuming that the valutions provided by the independent consultants are accurate, and based on the results in the table above, the minimum price should be approximately €11.7 million. If a higher price is not offered, the company can be liquidated and sold for this amount.

5

[Total: 20 Marks]

Workings:

W1

Net Assets Basis	**Bal. Sheet Per Ques**			**Adjustments**	**Revised Amounts**
	€000s			€000s	€000s
Intangibles	1,400	-	80%	(1,120)	280
Land & Buildings	9,150	+	60%	5,490)	14,640
Plant & Equipment	6,280	-	0%	(780)	5,500
Inventory	1,485			(195)	1,290
Receivables	4,125	-	20%	(825)	3,300
Cash etc	4,670				4,670
Total Assets	27,110			2,570	29,680
Total C. Liabilities	3,850				3,850
LT Borrowings	3,170				3,170
Pension Obligations	1,680	+		390	2,070
Provisions etc	5,800	-	30%	(1,740)	4,060
Total Liabilities	14,500			(1,350)	13,150
Preference Shares	4,800				4,800
Net Assets (or Equity)		7,810		Adj. Net Assets	11,730
	x	1.4			
Book Value adj. for multiple		10,934			

(6 marks)

W2
PBIT & PAT Basis

C Tax Rate	**20%**					**Adjusted**	
	2013	**2014**	**2015**	**2016**	**2017**	**2017**	**Average**
	€000s	**€000s**	**€000s**	**€000s**	**€000s**	**€000s**	**€000s**
PBIT (Before Adj.)	1,220	1,095	1,250	1,540	2,730	2,730	1,567
less: Revenue Adj.						-745	
less: WIP Adj						-195	
less: Bad Debt						-825	
Adj PBIT	1,220	1,095	1,250	1,540		965	1,214
Interest Expense	490	185	220	245	335	335	
PBT	730	910	1,030	1,295	2,395	630	
Tax	146	182	206	259	479	126	
PAT (Before Adj.)	584	728	824	1,036	1,916		1,018
Adj. PAT	584	728	824	1,036		504	735

(6 marks)

W3
Valuations based on Multiples

(Prior to Adjustments)	**Prior to Adjustments €000s**		**Multiples**		**Valuations €000s**
PBIT	1,567	x	6.0		9,402
PAT	1,018	x	9.0	(W4)	9,16

(Post Adjustments)	**Post Adjustments €000s**		**Multiples**		**Valuations €000s**
PBIT	1,214	x	6.0		7,284
PAT	735	x	9.0	(W 4)	6,615

(2 marks)

W4

Adjusted P/E Ratio			Adjustment	P/E
Comparable P/E	15	-	40%	9.0
(To be applied to PAT only)				

(0.5 marks)

SOLUTION 5

Part B

Discussion of quote in the context of the current environment for global capital markets. The discussion should incorporate a critical analysis of the CAPM and the elements of this model.

Note from Examiner
Candidates should note that for questions of this type, the quality of the discussion is more important than the volume of material written.

The Capital Asset Pricing Model (CAPM) was proposed as a method of measuring the relationship between the expected return and risk of a security. The global capital markets currently operate in an environment that is extremely complex and volatile. The quote by Mullins indicates that a careful analysis of the elements of this model can provide insights into the trade-off between risk and return. This can be beneficial for both providers of capital and organisations that wish to maximise their return and obtain useful insights into the nature of the relevant risks.

In today's volatile global capital markets, in an effort to minimise the amount of risk, many investors have used index funds (such as the ISEQ 100 FTSE 100, S&P 500 etc.) which are linked to the performance of a wide range of companies.

CAPM is based on the notion that there are two categories of risk that must be identified. These were proposed as:

- Systematic Risks - These are described as 'market risks'. It is claimed that these exogenous factors cannot be diversified away. They include macroeconomic factors such as: interest rates; inflation; recessions etc.; along with other political and social factors that are outside the control of the individual investor and organisation.

- Unsystematic Risks – These are also known as 'specific risks' or 'diversifiable risks. This type of risk relates directly to the individual company and thus impacts on its share value. It is claimed that this type of risk can be diversified away by investors increasing the number of shares (from different business sectors) in their portfolios. Looking at this in mathematical terms, identifying this risk which is specific to each security, will mean that we can measure the return from an investment that is not directly correlated with the movement of a market portfolio such as the index funds referred to above.

Large scale investment in the index funds worldwide means that, by definition, the returns will be based on average increases or decreases in the component shares that make up these portfolios. However, further critical analysis of Systematic Risk reveals some insights that can be useful for both investors and organisations.

Systematic Risk consists of two parts:

1. Exposure to the external macroeconomic and political, social, technological etc. factors that cannot be controlled by the organisation.
2. The 'mix' of fixed to variable costs.

Investigating these issues further, from the perspective of assessing the impact of the exogenous factors on a firm's fundamentals can provide useful information. This could involve considering a number of issues including:

- Identifying income sources and customer segments and estimating the impact of external factors on their revenues, costs and spending patterns etc.

- Carrying out a similar exercise on suppliers of all significant goods, services, assets, sources of finance etc.

- Analysis of costs (both operating and financial) to estimate fixed and variable elements

- Examination of other sources of information in order to identify other relevant issues and risk factors

- Analysis of the available information to include standard existing ratios as well as relevant new and metrics

- Review of findings in order to identify resources, risk factors, opportunities and possible responses.

Having carried out this detailed fundamental analysis, the CAPM can be applied to calculate the expected return for an investor and the cost of capital for companies. According to the CAPM, the expected return from an investment can be calculated by applying the following formula:

$R(a) = R(rf) + [B(a) \times (Rm - R(rf))]$

Where:

R(a) = Expected return on a security (a)
R(rf) = Risk-free rate
B(a) = Beta of the security (a)
Rm = Expected return on market

This means that the Risk Premium = (Rm – Rrf)

However caution should be exercised as outlined below in a brief critical analysis of the elements of the model.

Risk-free rate – Normally taken to be yield from a Government Security. However, as seen in the 2008 financial crisis, these are not always 'risk free' and yields can vary even for the bonds of larger companies.

Beta of the security – Theoretically, this can be measured by calculating the variance from a 'Security Market Line' which approximates to the return from index funds. However, the return can vary depending on the index used. Also, like all financial models, it is based on historic performance which may not repeat.

Expected return on market – Again, this is based on an historic average. Previous analysis of these returns reveals that it is the immensely difficult to predict the future price movement of the market portfolios and hence the appropriate amount of a Risk Premium for the individual shares.

However, in spite of its many shortcomings, CAPM can be useful for investors and organisations especially if they are aware of these limitations and it is used as a starting point to assess a company's ability to adapt to the extremely volatile global market environment.

		Marks
1 Mark for each properly stated valid point (max 12)	(12 x 1)	12
8 Marks for expression and coherence of appraisal		8

[Total: 20 Marks]