



FINANCIAL MANAGEMENT

This paper consists of **THREE** questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet.
2. Answer each question in black ballpoint pen only.
3. Answers to each question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.
5. When the assessment is declared closed, you must stop writing immediately. If you continue to write (even completing your candidate details on a continuation booklet), it will be classed as misconduct.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must **NOT** be removed from the examination hall.

**DO NOT TURN OVER UNTIL YOU
ARE INSTRUCTED TO BEGIN WORK**

You **MUST** enter your candidate number in this box.

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1a. **You should assume that the current date is 30 November 2014**

Northern Risk Management Solutions (NRMS) is an authorised financial advisor and provides investment and risk management advice to a wide range of clients in Northern England. You are an ICAEW Chartered Accountant employed by NRMS with responsibility for providing risk management advice to two clients, Pared Ltd (Pared) and Spring Gardens Investments (SGI), and investment advice to the owners of Pared.

Pared is an agent for a Spanish wall tile manufacturer and sells tiles to customers in the UK and the Republic of Ireland. In the past Pared has hedged the foreign exchange rate risk on its foreign currency transactions using the money markets (money market hedges). Pared's bank has suggested that it would be better for the company to use either forward contracts or over the counter (OTC) currency options. The owners of Pared are now unsure as to how they should be hedging their currency risk. You have been asked to make a comparison of the results of hedging using the three different techniques.

Pared has the following euro receipts and payments due in three months' time.

Receipts due from Irish customers on 28 February 2015	€3.4m
Payments due to the Spanish supplier on 28 February 2015	€2.1m

The following data is available to you at the close of business on 30 November 2014:

Spot exchange rate (€/£)	1.2184 - 1.2188
Three-month forward contract premium (€/£)	0.0013 - 0.0012

Three-month OTC currency option to buy £ with €:

Exercise price €/£ 1.2180, premium of £0.02 per euro to be converted payable on 30 November 2014.

Annual borrowing and depositing interest rates are:

Euro	3.60% - 2.80%
Sterling	4.40% - 3.40%

Requirements

- (i) Assuming that the spot exchange rate on 28 February 2015 will be €/£ 1.2179 - 1.2182, calculate Pared's net sterling receipt if it uses the following to hedge its foreign exchange rate risk:

- a money market hedge
- a forward contract
- an OTC currency option

(11 marks)

- (ii) Discuss the relative advantages and disadvantages of each technique and advise Pared's owners on which would be the most beneficial for hedging its foreign exchange rate risk.

(9 marks)

- 1b. One of the supervisors at SGI manages a portfolio of FTSE100 shares. The portfolio is valued at £100m on 30 November 2014 and the supervisor is convinced that the markets will fall significantly over the next month to 31 December 2014. He wishes to protect the portfolio against this potential fall in value.

FTSE100 one-month index futures are currently trading at 6,700. Each contract is for a notional value of the futures price multiplied by £10.

Requirements

- (i) Demonstrate the result of hedging using index futures over the next month assuming that, on 31 December 2014, the portfolio value is £95m and the index futures price will be 6,365. **(3 marks)**
- (ii) Identify the disadvantages of a futures hedge and why in practice the hedge may not be totally efficient. **(4 marks)**

- 1c. You have a meeting scheduled for 1 December 2014 with Yolanda Luz, one of the owners of Pared. She holds some shares in a listed company, Sunshine Holidays plc, and she has asked your advice on whether she should hold or sell them.

During your conversations with the supervisor at SGI he had mentioned to you that he had very reliable information that there is likely to be a takeover of Sunshine Holidays plc.

Requirement

Identify and explain any ethical issues arising for you in advising Yolanda on whether to hold or sell her shares in Sunshine Holidays plc. **(3 marks)**

Total: 30 marks

2. You should assume that the current date is 31 December 2014

Rossendale Hotels plc (Rossendale) operates a chain of city centre and country hotels in the UK. Rossendale set up a division, Inside&Out, which carries out the maintenance, cleaning and gardening at all its own hotels and the hotels of some other companies in the industry.

At a recent meeting the board of Rossendale were discussing a possible restructuring of the company by divesting of Inside&Out. However, the board is not certain about the best way to achieve the divestment in order to maximise the wealth of Rossendale's shareholders. The Chief Executive (CE) feels that a demerger would be the most appropriate method, but also feels that the existing management team of Inside&Out should be given the opportunity to buy the division. One of the other board members feels that a sell-off to a third party would be most beneficial for Rossendale's shareholders. At the meeting the CE stated that the first thing to do is to put a value, at 31 December 2014, on Inside&Out. He has now asked Rossendale's finance director to value the division and prepare notes regarding how and why the restructuring should be undertaken before a final decision is made.

Rossendale's finance director intends to value the division using net present value at 31 December 2014. However, one difficulty that he has is that sales are hard to predict. After analysing data for the past ten years he has estimated that sales (in 31 December 2015 prices) and associated probabilities for the year ended 31 December 2015 will be:

Sales £m	Probability
25	40%
105	20%
130	40%

Sales in the following three years would remain at the first year's expected level, adjusted for volume and price changes.

Additional cost and revenue information:

- After 31 December 2015, sales volume growth is expected to be 10% pa for three years and sales prices are expected to rise by 5% pa. Contribution is 15% of sales.
- Incremental fixed costs will be £5m for the year ended 31 December 2015 and will increase subsequently by the general level of inflation.
- Currently the vehicles and equipment of Inside&Out are leased. It is now the intention to buy new vehicles and equipment. Investment in new vehicles and equipment on 31 December 2014 will be £10m. The vehicles and equipment will have a value of £2m on 31 December 2018 (in 31 December 2018 prices). The vehicles and equipment will attract 18% (reducing balance) capital allowances in the year of expenditure and in every subsequent year of ownership by the company, except the final year. In the final year, the difference between the plant and machinery's written down value for tax purposes and its disposal proceeds will be treated by the company either:
 - (i) as an additional tax relief, if the disposal proceeds are less than the tax written down value, or
 - (ii) as a balancing charge, if the disposal proceeds are more than the tax written down value.

- Assume that the rate of corporation tax will be 21% pa for the foreseeable future and that tax flows arise in the same year as the cash flows which gave rise to them.
- An appropriate real weighted average cost of capital for the division is 7% pa and the general level of inflation is expected to be 3% pa.
- On 31 December 2014 Inside&Out requires an additional investment of £5m in working capital, which will increase at the start of each year in line with sales volume growth and sales price increases. Working capital will be fully recoverable on 31 December 2018.
- The finance director intends to include in the valuation of the division a continuing value at the end of four years that will represent the value of the net cash flows beyond the fourth year after tax. This will be calculated as a multiple of 10 times the after tax operating cash flows for the year ended 31 December 2018.
- Unless otherwise stated you should assume that all cash flows arise at the end of the year to which they relate.

Requirements

- Calculate, using money cash flows, the expected net present value of Inside&Out on 31 December 2014. **(16 marks)**
- Ignoring the effects on working capital**, calculate the sensitivity of the valuation of Inside&Out to changes in sales revenue and discuss this sensitivity with reference to the sales and associated probability estimates provided by the finance director. **(5 marks)**
- Outline another valuation method that would be appropriate for placing a value on Inside&Out. **(3 marks)**
- Explain and justify the possible reasons for the divestment of Inside&Out from Rossendale. **(5 marks)**
- Discuss the advantages and disadvantages of Rossendale divesting itself of Inside&Out by:
 - A demerger (also known as a spin-off) into two listed companies
 - A sell-off
 - A management buyout (MBO)**(6 marks)**

Total: 35 marks

3. You should assume that the current date is 30 November 2014

Wiggins plc (Wiggins) provides engineering and production support to the power generation industry. Wiggins is planning its capital expenditure programme and, on 1 December 2014, intends to raise £200m to invest in projects during 2015. Some of these projects will be in a different industry sector to current operations. The board is discussing how the additional £200m should be raised.

The finance director of Wiggins has presented the board with two alternative sources of finance as follows:

Debt issue – the £200m would be raised by an issue of 3% coupon debentures, redeemable at par on 1 December 2024. The bond markets would currently expect a gross redemption yield for such an issue of 5% pa.

Equity issue – the £200m would be raised by a 1 for 8 rights issue, priced at a discount on the current market value of Wiggins's ordinary shares.

The board has expressed a number of concerns regarding the raising of the £200m and the hurdle rate that should be used to appraise the projects in which the funds will be invested. The sales director is concerned that the hurdle rate will increase and that some of the new projects may be unviable and will be rejected. The Chief Executive has read that, whatever the hurdle rate, the Capital Asset Pricing Model (CAPM) has severe weaknesses and that other models should be used to calculate the company's cost of equity. The production director is concerned about the issue price of the debentures and, if a rights issue is used, whether the rights will be fully subscribed.

An extract from Wiggins' most recent management accounts is shown below:

Income statement for the year ended 30 November 2014

	£m
Operating profit	239
Interest on debentures	12
Profit before tax	227
Taxation	48
Profit after tax	179

Wiggins' financial structure at 30 November 2014

£300m 4% debentures, redeemable at par on 30 November 2018, with a current market value of £108 cum-interest per £100 nominal debenture.

360m ordinary shares with a current ex-dividend market value of £5.60 per share.

Additional information:

- Wiggins has an equity beta of 1.20
- The risk free rate is 2.0% pa
- An appropriate market risk premium is 5% pa
- The corporation tax rate can assumed to be 21% pa for the foreseeable future
- The power generation industry average interest cover is 11 and average gearing (debt/equity by market values) is 30%.

Requirements

- (a) **Ignoring the new finance and investments**, calculate (using the CAPM) Wiggins' weighted average cost of capital on 30 November 2014. **(6 marks)**
- (b) Assuming debt is issued on 1 December 2014, calculate the issue price and the total **nominal** value of new debt that will have to be issued to give a gross redemption yield of 5% pa and discuss the reasons why this yield is different to the yield on Wiggins' existing debentures. **(5 marks)**
- (c) Assuming a 1 for 8 rights issue is made on 1 December 2014:
- (i) calculate both the discount the rights price represents on Wiggins' current share price and the theoretical ex-rights price
 - (ii) discuss whether the actual share price is likely to be equal to the theoretical ex-rights price. **(5 marks)**
- (d) Outline the advantages and disadvantages of the two alternative sources for raising the £200m and, using the industry average interest cover and gearing information, advise Wiggins' board on which source should be used. **(10 marks)**
- (e) Discuss whether the hurdle rate to appraise the planned new investments should be either:
- (i) the weighted average cost of capital figure calculated in (a) above; or
 - (ii) the individual cost of whichever new source of funding (i.e. equity or debt) is selected. **(5 marks)**
- (f) Explain how multiple factor models might overcome the weaknesses of the CAPM. **(4 marks)**

Total: 35 marks

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. More marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

Question 1

Total Marks: 30

General comments This was a five-part question which tested the candidates' understanding of the risk management element of the syllabus. The scenario of the questions was that a risk management company was giving advice to two clients. In part (a) of the question a client had previously hedged foreign exchange rate risk using the money markets and the client's bank had suggested using either forward contracts or foreign currency options. In Part (b) of the question a client wished to hedge a portfolio of shares against a fall in value. In Part (c) of the question a client was requesting advice on a whether she should hold or sell some shares that she owned.	
(a) (i) Matching receipts and payments results in a net receipt of €1.3 million (€3.4 m - €2.1 m) For a forward contract the exchange rate is €/£ 1.2176 (€1.2188 €0.0012) The forward contract will result in a sterling receipt of £1,067,674 (€1,300,000/€1,2176) Using the money markets, Pared will borrow in euros against the receipt, buy sterling at the spot rate and invest in sterling. Borrow $€1,300,000 / (1 + 0.036 \times 3/12) = \text{€1,288,404}$ Buy sterling spot $€1,288,404 / €1.2188 = \text{£1,057,109}$ Invest in sterling to yield a receipt in total of $£1,057,109 \times (1 + 0.034 \times 3/12) = \text{£1,066,094}$ Options. The call option premium is payable up front and together with interest will cost $€1,300,000 \times £0.02 = \text{£26,000}$. $£26,000 \times (1 + 0.044 \times 3/12) = \text{£26,286}$ (assuming overdraft, interest foregone also ok) If the spot exchange rate on 28 February is €/£1.2182 the option will be exercised since the exercise price of €/£1,2180 is more attractive. This will result in a receipt in sterling of $€1,300,000 / €1.2180 = \text{£1,067,323}$ After taking the premium into account the net receipt will be $£1,067,323 - £26,286 = \text{£1,041,037}$	
Well answered by many candidates, however, it was disappointing to note the following common errors made by a large number of candidates on what should have been very straightforward, well rehearsed calculations which have been examined many times before. Some common errors were: choosing the incorrect exchange rates; adding premiums to the spot rate; not netting receipts and payments; choosing the incorrect interest rates for the money market hedge; treating an over the counter option like a traded option; converting an option premium in £ to €, when it is payable in £.	
Total possible marks	11
Maximum full marks	11

(a) (ii)	
<p>The sterling receipt at the spot rate on 28 February 2015 would be: $\text{€}1,300,000/\text{€}1.2182 = \text{£}1,067,148$</p> <p>No matter what the spot exchange rate is on 28 February 2015 the results of the forward contract and money market hedge will be unchanged. The forward contract is more attractive since it results in a higher sterling receipt and is better than spot, unlike MM</p> <p>However if Pared needs funds in the UK earlier than 28 February 2015 the money market hedge may be attractive.</p> <p>Both the forward contract and the money market hedge rely upon the customer paying on time/paying at all.</p> <p>The option results in the lowest net receipt due to the premium, which is expensive. However the option does allow Pared to exploit upside potential. For example if the euro were to strengthen significantly against sterling, Pared could let the option lapse.</p> <p>If the customer does not pay on time the premium will be lost.</p> <p>Given the high cost of the option, I would recommend that Pared uses forward contracts to hedge its FOREX</p>	
Well answered by many candidates, however easy knowledge marks were often missed, many students missed the marks for giving a conclusion.	
Total possible marks	9
Maximum full marks	9

(b)(i)	
<p>Since SGI wishes to protect itself against a fall in the portfolio it will need to sell index futures on 30 November 2014.</p> <p>The number of contracts to sell is: $\text{£}100 \text{ million}/(6,700 \times \text{£}10) = 1492.53$. Round to 1,493 contracts.</p> <p>On 31 December 2014 the loss on the portfolio will be $\text{£}100 \text{ million} - \text{£}95 \text{ million} = \text{£}5 \text{ million}$</p> <p>The futures will be closed out and a gain will be made of: $(6,700 - 6,365) \times \text{£}10 \times 1,493 = \text{£}5,001,550$.</p>	
This was well answered by most students but common errors were: incorrect calculations for the number of contracts; whether to sell or buy the futures when setting up the hedge; incorrect close out calculations.	
Total possible marks	3
Maximum full marks	3

(b)(ii)	
<p>Disadvantages include:</p> <p>Basis risk may exist which means that the price of a futures contract will normally be different to the spot price on any given day. This creates the potential for excess losses or gains.</p> <p>Contracts are in standard sizes and the number of contracts to sell will have to be rounded.</p> <p>The disadvantage of the futures hedge is that SGI is locked in to a portfolio value of approximately $\text{£}100$ million. If the portfolio were to increase in value SGI would make a loss on its futures trade and can not therefore take advantage of any upside potential.</p> <p>Another disadvantage is the requirement of a margin to be deposited at the exchange and there is the potential to have to make margin calls.</p>	
Well answered by many candidates but again weaker candidates lost marks by only mentioning basis risk and rounding of contracts	
Total possible marks	4
Maximum full marks	4

(c)	
<p>There is a clear conflict of interest here and the employee of NRMS should not disclose to Yolanda Luz the information that he has gained from SGI. It would be appropriate to refer Yolanda to another employee in NRMS for advice regarding whether to hold or sell the shares. There is also the potential for Yolanda Luz to be guilty of Insider Trading.</p>	
Reasonably well answered.	
Total possible marks	3
Maximum full marks	3

Question 2**Total Marks: 35****General comments**

This was a five-part question that tested the candidates' understanding of the investment decisions element of the syllabus. The scenario of the question was that a company wished to restructure by the divestment of a division. Part (a) of the question required candidates to value the division being divested. Part (b) of the question required candidates to calculate the sensitivity of the division's value to certain inputs into the valuation model. Part (c) of the question required candidates to outline another valuation technique that could be used to value the division. Part (d) of the question required candidates to discuss the possible reasons for the divestment of the division. Part (e) of the question required candidates to discuss whether the advantages and disadvantages of different methods that could be used for the divestment.

(a)

Probability	Sales £ m	Pro x Sales £m
0.4	25	10
0.4	130	52
0.2	105	21
Expected Sales		83

Contribution = £83 m x 15% = £12.45 m in 2015 £s already

Nominal discount rate = $(1.07) \times (1.03) - 1 = 10\%$ (or 10.21%)

	0 £ m	1 £ m	2 £	3 £ m	4 £ m
Contribution		12.45	14.38	16.61	19.18
Fixed Costs		(5)	(5.15)	(5.3)	(5.46)
Operating cash flows		7.45	9.23	11.31	13.72
Tax 21%		(1.56)	(1.94)	(2.38)	(2.88)
After tax operating cash flows		5.89	7.29	8.93	10.84
Vehicles and Equipment	(10)				2
Tax saved on Cas	0.38	0.31	0.25	0.21	0.53
Working Capital	(5)	(0.78)	(0.9)	(1.03)	7.71
Continuing value					108.4
Net cash flows	(14.62)	5.42	6.64	8.11	129.47
PV factors at 10%	1	0.909	0.826	0.751	0.683
Present value	(14.62)	4.93	5.48	6.09	88.43
NPV	90.31				
CAs and Tax saved.					
	Cost/WDV	CA	Tax		
0	10	1.8	0.38		
1	8.2	1.48	0.31		
2	6.72	1.21	0.25		
3	5.51	0.99	0.21		
4	4.52				
Sale	-2	2.52	0.53		

<p>Contribution:</p> <p>Year 2: $12.45 \times 1.10 \times 1.05 = £14.38\text{m}$</p> <p>Year 3: $14.38 \times 1.10 \times 1.05 = £16.61\text{m}$</p> <p>Year 4: $16.61 \times 1.10 \times 1.05 = £19.81\text{m}$</p> <p>Working capital:</p> <p>Year 1: $5 \times 1.1 \times 1.05 - 5 = £0.78\text{m}$</p> <p>Year 2: $5.78 \times 1.1 \times 1.05 - 5.78 = £0.90\text{m}$</p> <p>Year 3: $6.68 \times 1.10 \times 1.05 - 6.68 = £1.03\text{m}$</p> <p>Year 4: $£7.71\text{m}$</p> <p>Continuing value: $10.84 \times 10 = £108.4 \text{ m}$</p>	
<p>Well answered by the majority of students. The valuation was to be carried out using NPV analysis and the question was designed to give 7 or 8 basic marks, however some errors that many candidates made were: incorrect adjustments for price increases, inflation and growth; incorrect working capital computations; discounting nominal cash flows with a real cost of capital; incorrect continuing value computations.</p>	
Total possible marks	16
Maximum full marks	16

(b)				
Sensitivity	1 £m	2 £m	3 £m	4 £m
Contribution X (1-0.21)	9.84	11.36	13.12	15.15
Continuing value				151.5
	9.84	11.36	13.12	166.65
PV factors at 10%	0.909	0.826	0.751	0.683
Present Value	9	9	10	114
Total present value	142			
Sensitivity 90.31/142	63.4%			
A fall in sales of £83 million to: $83(1-0.634) = £30.12$ million.				
As there is a 40% chance that the sales will be £25 million the management of Rossendale should consider how this will be viewed by the markets if Inside&Out were to be listed, or by a potential buyer.				
Quite poor attempts by a lot of students. There were many basic errors were made in the sensitivity computations: using sales instead of contribution; omitting tax; incorrect application of the formula for sensitivity; no interpretation of the results and no, or little, reference to the probability distribution of sales				
Total possible marks	7			
Maximum full marks	5			

(c)	
<p>Inside&Out could be valued by reference to a multiple such as a p/e ratio. A proxy company would have to be chosen that has similar operating characteristics to Inside&Out.</p> <p>This multiple could be adjusted to take into account that Inside&Out is a division of Rossendale and a not listed company.</p>	
Quite poor answers and many students suggest valuation methods inappropriate for the valuation of a service company, or just gave a list of all valuation techniques. It was disappointing to see students use this part of the question to write about SVA which gained no marks.	
Total possible marks	3
Maximum full marks	3

(d)	
<p>Appropriate reasons for divestment in Rossendale's circumstances include:</p> <p>Lack of fit – Inside&Out is a diversification from Rossendale's core activities and the divestment will allow the firm to concentrate on developing its hotel chain. This would particularly be the case if the division's size is making increasing demands on senior management's time.</p> <p>Conglomerate discount – a belief that the individual parts of the business can be worth more than the whole. This is sometimes expressed as $5 - 1 = 5!$</p> <p>Liquidity – divestment by way of a sale will provide funds for further expansion of the hotel chain or to pay down debt.</p>	
Reasonably well answered. However weaker students only mentioned lack of fit.	
Total possible marks	5
Maximum full marks	5

(e) i)	
<p>A demerger (or spin-off) into two listed companies – Advantages include: no change in ownership, since shareholders will hold shares in two separate businesses; shareholders can enjoy the growth prospects of both companies; the two companies will have separate corporate identities and shareholders can choose whether they wish to realise their investment in one or other of the businesses; the spin-off may avoid the problem of conglomerate discount; it may avoid the takeover of the whole business by separating a particularly attractive part of the business. The major disadvantage is that the demerger will not result in any cash inflows for Rossendale.</p> <p>ii) A sell of has the advantage that it will provide cash that can be invested in the development of the hotel chain. The disadvantages include: the shareholders of Rossendale will no longer be able to participate in the future growth potential of Inside&Out; it may be difficult to find a buyer and to agree on the price, especially with the uncertainty attached to the projected sales.</p> <p>iii) A management buyout (MBO) – The same advantages and disadvantages apply to an MBO as to a sell-off. However the major advantage is that Rossendale may have a willing buyer that has knowledge of Inside&Out. The management team will have knowledge of the risks and uncertainties attached to the business and may be more willing to take the risk than a third party buyer. The management team may also be keen to safeguard their jobs.</p> <p>However the management team may have difficulty raising the funds to buy the division.</p>	
It was evident that many students only had a superficial knowledge of this area of the syllabus.	
Total possible marks	9
Maximum full marks	6

Question 3**Total Marks: 35****General comments**

This was a six-part question that tested the candidates' understanding of the financing options element of the syllabus.

The scenario of the question was that a company was planning its capital expenditure programme and was discussing how best to raise the additional funds required, either by debt or equity.

Part (a) of the question required candidates to calculate the current WACC of the company. Part (b) of the question required candidates to make some calculations in relation to a debenture issue and to discuss certain practical aspects of the debenture issue. Part (c) of the question required candidates to make some calculations regarding rights issues and to discuss certain practical aspects of rights issues. Part (d) of the question required candidates to discuss the advantages and disadvantages of the two alternative sources of funds (debt or equity) and to discuss which would be most appropriate for the company. Part (e) of the question required candidates to discuss the hurdle rate that should be used to appraise the projects that the new capital is to be invested in. Part (f) of the question required candidates to discuss alternatives to the CAPM.

(a)

The cost of equity = $2\% + 1.2 \times 5\% = 8\%$

The cost of debt will be the internal rate of return (IRR) of the 4% debenture less tax relief. The IRR is calculated as follows:

The ex interest price of the debentures = $\text{£}108 - \text{£}4 = \text{£}104$

Timing - years	Cash Flow £	Factors at 1%	PV £	Factors at 5%	PV £
0	(104)	1	(104)	1	(104)
1-4	4	3.902	15.61	3.546	14.18
4	100	0.961	96.10	0.823	82.30
			7.71		(7.52)

$\text{IRR} = 1 + (7.71 / (7.71 + 7.52)) \times 4 = 3.03\%$

$K_d = 3.03(1 - 0.21) = 2.39\%$

Market values:

Equity 360 million $\times \text{£}5.6 = \text{£}2,016$ million

Debt $\text{£}300$ million $\times 104/100 = \text{£}312$ million

$\text{WACC} = (8\% \times 2016 + 2.39\% \times 312) / (2016 + 312) = 7.25\%$

There were some disappointing attempts at this part of the question which has been examined many times before, common errors were deducting the risk free rate from the market risk premium; adjusting the beta factor for gearing when not required to do so; incorrect computation of the market value of debt; incorrect computation of the yield to maturity of the existing debenture; no deduction of tax from the cost of debt.

Total possible marks

6

Maximum full marks

6

(b)

The issue price is:

Timing - years	Cash Flow £	Factors at 5%	PV £
1-10	3	7.722	23.17
10	100	0.614	61.40
		Issue price	84.57

The total nominal value will be: $£200/0.8457 = £236.5$ million.

Possible reasons for the yield of 5% on the new debentures being greater than the 3.03% yield on the current debentures are: expectations of higher interest rates in the future since the new debentures mature in 2024 rather than 2018 for the current debentures; higher risk; market appetite for the issue (price to succeed); the increase in Wiggins's financial risk.

Answers were disappointing since this has been asked before. Candidates were required to calculate the issue price for the new debentures, they were given the coupon, the redemption value, which was at par, the redemption date and the yield to maturity. They then had to calculate the nominal value of the total debt to be issued. Common errors were: Calculating the YTM when it was given in the question; no grossing up to arrive at the total nominal value; deducting tax from the yield to maturity in the question; no discussion of why the YTM on the new issue was different to that of the existing debentures. However the better candidates gained full marks on this section.

Total possible marks
Maximum full marks

5
5

(c)

A 1 for 8 rights issue will require $360/8 = 45$ million new shares to be issued.

The price per share = $£200 \text{ million} / 45 \text{ million} = £4.44$

A discount on the current market price of: $5.60 - 4.44/5.6 = 21\% \text{ (or } £1.16)$

The theoretical ex-rights price is

	Number of shares	Value per share £	Number x Value £
Existing shares	8	5.60	44.80
New shares	1	4.44	4.44
Total shares	9	Total value	49.24

Theoretical ex-rights price = $£49.24/9 = £5.47$.

The actual share price will depend on the markets reaction to the rights issue eg fully taken up and whether the proceeds are invested in positive net present value projects.

If we were told the net present value of the projects this could be incorporated in the theoretical ex-rights price of $£5.47$ giving a more realistic estimate of the actual share price post rights issue.

Well answered by most students. However weaker students were calculating the discount that the rights issue represents as the difference between the current share price and the theoretical ex-rights price.

Total possible marks
Maximum full marks

6
5

(d)

General advantages and disadvantages are:

Equity: The advantage of a rights issue is that there will be no increase in gearing or reduction in interest cover. However the disadvantages are cost, timing and dilution of control if the rights are not taken up. The rights issue may also fail to be successful; however this can be mitigated by the issue being underwritten. **(debt = converse so no more marks)**

In the circumstances of Wiggins plc the two alternatives would have the following effects on gearing and interest cover:

Current position:

Gearing = $\text{£}312 / \text{£}2016 = 15.5\%$

Interest cover = $\text{£}239 / \text{£}12 = 20$ times

If debt is issued:

Gearing = $\text{£}312 + \text{£}200 / \text{£}2016 = 25\%$

Interest cover =

Interest = $\text{£}12 + (\text{£}236.5 \times 0.03) = \text{£}19.1$ Interest cover based on current earnings = $\text{£}239 / \text{£}19.1 = 12.5$ times.

With a rights issue:

Gearing = $\text{£}312 / (\text{£}2016 + \text{£}200^*) = 14\%$

No change in interest cover (based on current earnings)

*Rounding

In both cases the figures would be affected by the additional earnings from the new investments and any change in the share price.

The rights issue slightly reduces the gearing from 15.5% to 14%, this may not be desirable since Wiggins's gearing is well below the average for the sector of 30%. Interest cover at 20 times is well above the industry average of 11, this is a very safe margin. This analysis indicates that Wiggins has spare debt capacity.

The debenture issue increase Wiggins's gearing to 25% which is still below the industry average of 30%. The interest cover of 12.5 times is now much closer to the industry average of 11 times. The affect on Wiggins's share price and also the cost of debt is hard to predict, however having a gearing ratio and interest cover close to the industry averages may be welcomed by the markets and shareholders.

Having regard to the gearing and interest cover comments above the debenture issue is likely to be preferred since it is quicker and less costly than a rights issue.

It was disappointing to see many candidates not using the information given in the question regarding the industry average interest cover and gearing. Many candidates made the following errors: providing a discussion, and diagrams, of M & M's theory on capital structure; just a general discussion of debt and equity with no reference to the scenario of the question; no reference to the industry averages; incorrect gearing calculation; incorrect interest cover calculations, often using after interest and sometimes after tax profits; no conclusion.

Total possible marks	12
Maximum full marks	10

(e)	
<p>Wiggins's long term funding currently has a market value of £2328 million and the company plans to raise £200 million which represents an increase of 9% on that current market value. This is a small increase and it is reasonable to use the existing WACC as the hurdle rate.</p> <p>However since the new finance will be used to invest in some projects in a different industry sector than current operations, the discount rate will have to be adjusted to reflect the systematic risk of those projects.</p> <p>It would not be appropriate to use the individual cost of each source. Regarding equity, the company is financed from a pool of funds and WACC should be the hurdle rate. Regarding debt, the cost of debt represents the risk to the lenders and not that of the projects.</p>	
<p>This was not well answered with many students not considering the scale of the new finance raised in proportion to the current market values of equity and debt. Weaker students suggested that the individual cost of each source of funds should be used as the hurdle rate.</p>	
Total possible marks	6
Maximum full marks	5

(f)	
<p>The CAPM specifies that the only risk factor that should be taken into account is the market risk premium. Subsequent empirical research has shown that there may be other factors in addition to market risk premium that explain differences in asset returns, such as interest rates and industrial production.</p> <p>Two models which analyse returns on multiple factors are:</p> <p>The arbitrage pricing model (APM). APM uses four key factors to analyse returns, these factors are: unanticipated inflation; changes in the expected level of industrial production; changes in the risk premium of bonds; unanticipated changes in the term structure of interest rates. The model works in a similar way to the CAPM in that it assumes that investors are fully diversified. A beta for each factor is calculated and applied to the risk premium.</p> <p>Fama and French identified two factors in addition to the market portfolio that explain company returns namely size and the ratio of book value to market value. Again a beta factor is calculated and applied to the risk premium. The model has been augmented with the addition of a fourth factor namely the momentum factor.</p>	
<p>This was not well answered with many students only discussing the weaknesses of the CAPM.</p>	
Total possible marks	6
Maximum full marks	4



FINANCIAL MANAGEMENT

This paper consists of **THREE** written test questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet.
2. Answer each question in black ball point pen only.
3. Answers to each written test question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must NOT be removed from the examination hall.

**DO NOT TURN OVER UNTIL YOU
ARE INSTRUCTED TO BEGIN WORK**

You **MUST** enter your candidate number in this box.

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1a. **You should assume that the current date is 31 May 2014.**

Stelvio Ltd (Stelvio) imports climbing equipment from suppliers in the USA. In the past Stelvio has not hedged its foreign exchange rate risk and has purchased foreign currency on the spot market as and when required. The managing director of Stelvio, Fred Hughes, has recently been reading about hedging techniques that might assist his company; in particular he has read about the use of forwards, futures and over the counter options. Fred is not convinced about the merits of hedging as he is of the opinion that the forward rate is a good indication of the future spot rate. He believes he can estimate the sterling cost of the company's future foreign currency payments with confidence, without having to use complex derivative instruments.

Stelvio currently has a bank overdraft that costs 6% pa. It has a payment to make of \$940,000 on 30 September 2014.

The following information is available at the close of business on 31 May 2014:

Exchange rates:

Spot rate (\$/£)	1.6025 - 1.6027
Four month forward premium (\$/£)	0.0021 - 0.0020

September currency futures price (standard contract size £62,500) \$1.5995/£

Over the counter currency option

A September call option to buy \$ has an exercise price of \$1.6100/£. The premium is 4p per \$ and is payable on 31 May 2014.

Requirements

Produce a report for Fred Hughes which should include:

- (i) A calculation of Stelvio's sterling payment if it uses each of the following to hedge its foreign exchange rate risk:
- a forward contract
 - currency futures contracts
 - an over the counter currency option.

You should assume that on 30 September 2014 the spot exchange rate will be \$1.5002 - 1.5008/£ and that the sterling currency futures price will be \$1.5005/£.

(11 marks)

- (ii) A discussion of the relative advantages and disadvantages of using the methods in part (i) above to hedge Stelvio's foreign exchange rate risk. **(9 marks)**

- (iii) An explanation, making reference to relevant theories regarding foreign exchange rates, or whether Fred is correct that he does not need to hedge Stelvio's foreign exchange rate risk. **(4 marks)**

- 1b. In May 2009 Stelvio financed the purchase of a warehouse with a £5 million ten year floating rate loan at LIBOR + 3% pa. Fred Hughes believes that interest rates are going to rise over the next five years and he would like to protect the company against interest rate risk. He has been in contact with Zeta Leasing Ltd (Zeta) which has a policy of keeping a certain proportion of their borrowings at a fixed rate. Zeta would like to swap £5 million of its fixed rate loans to a floating rate. A bank has offered to arrange the swap and Fred has agreed that all the benefits from the swap will be shared equally between Stelvio and Zeta. Stelvio can borrow at a fixed rate of 5% pa. Zeta can borrow at a fixed rate of 3% pa and at a floating rate of LIBOR + 2% pa. LIBOR is currently 0.60% pa.

Requirements

- (i) Demonstrate how the proposed interest rate swap between Stelvio and Zeta would be implemented. **(4 marks)**
- (ii) Calculate the initial difference in annual interest rates for Stelvio if it enters into the interest rate swap and calculate the minimum amount by which LIBOR will have to rise for the swap to breakeven for Stelvio. **(2 marks)**
- (30 marks)**

2. Turners plc (Turners) is a listed company in the food retailing sector and has large stores in all the major cities in the UK. Turners' board is considering diversifying by opening holiday travel shops in all of its stores.

At a recent board meeting the directors were discussing how the holiday travel shops project ('the project') should be appraised. The sales director insisted that Turners' current weighted average cost of capital (WACC) should be used to appraise the project as the majority of its operations will still be in food retailing. The finance director disagreed because the existing cost of equity does not take into account the systematic risk of the new project. The finance director also said that the company's overall WACC, which reflects all of the company's activities, would change as a result of the project's acceptance. The board were also concerned about the market's reaction to their diversification plans. A further board meeting was scheduled at which Turners' advisors would be asked to make a presentation on the project.

You work for Turners' advisors and have been asked to prepare information for the presentation. You have established the following:

Turners intends to raise the capital required for the project in such a way as to leave its existing debt:equity ratio (by market values) unchanged following the diversification.

Extracts from Turners' most recent management accounts are shown below:

Balance Sheet at 31 May 2014

	£m
Ordinary share capital (10p shares)	233
Retained earnings	5,030
	<hr/>
	5,263
6% Redeemable debentures at nominal value (redeemable 2018)	1,900
Long term bank loans (interest rate 4%)	635
	<hr/>
	7,798

On 31 May 2014 Turners' ordinary shares had a market value of 276p (ex-div) and an equity beta of 0.60. For the year ended 31 May 2014 the dividend yield was 4.2% and the earnings per share were 25p. The return on the market is expected to be 8% pa and the risk free rate 2% pa.

Turners' debentures had a market value of £108 (ex-interest) per £100 nominal value on 31 May 2014 and they are redeemable at par on 31 May 2018.

Companies operating solely in the holiday travel industry have an average equity beta of 1.40 and an average debt:equity ratio (by market values) of 3:5. It has been estimated that if the project goes ahead the overall equity beta of Turners will be made up of 90% food retailing and 10% holiday travel shops.

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Requirements

- (a) Ignoring the project, calculate the current WACC of Turners using:
- (i) the CAPM (8 marks)
 - (ii) the Gordon growth model (6 marks)
- (b) Using the CAPM, calculate the cost of equity that should be included in a WACC suitable for appraising the project and explain your reasoning. (6 marks)
- (c) By calculating an overall equity beta and using the CAPM, estimate the overall WACC of Turners assuming that the project goes ahead and comment upon the implications of a permanent change in the overall WACC. (6 marks)
- (d) Discuss whether Turners should diversify its operations and how the stock market might react to the proposed project. (5 marks)
- (e) Identify the appropriate project appraisal methodology that should be used when a project's financing results in a major increase in a company's market gearing ratio and, using the data relating to Turners, calculate the project discount rate that should be used in these circumstances. (4 marks)
- (35 marks)**

PLEASE TURN OVER

3. You should assume that the current date is 31 May 2014

Sennen plc (Sennen) is a UK listed company in the chemical industry. Morgan plc (Morgan) is a UK listed company that has a policy of expanding by way of acquisition. As a result of financing its acquisitions with borrowings, Morgan's gearing is high compared to its competitors.

Morgan has identified Sennen as a potential takeover target and intends to make an offer for all of the ordinary shares of the company. The finance director of Morgan wishes to value Sennen's ordinary shares including any synergistic benefits that may arise following the acquisition. He is also considering the advantages and disadvantages of the different methods that can be used to pay for the ordinary shares. The intended offer for Sennen is not public knowledge.

The finance director of Morgan has asked North West Corporate Finance (NWCF) to give him advice regarding the intended offer for the ordinary shares of Sennen. You work for NWCF and a partner in the firm has asked you to prepare a report for a meeting that he is due to attend with the board of Morgan. You have established the following data relating to Sennen:

Sales revenue for the year ended 31 May 2014	£20 million
Competitive advantage period	3 years
Estimated sales revenue growth for the next three years	5% pa
Estimated sales revenue growth thereafter in perpetuity	2% pa
Operating profit margin	15%
Additional working capital investment at the start of each year	1% of that year's sales revenue
Additional non-current asset investment at the end of each year	2% of that year's sales revenue
After tax synergies at the end of each year	2.5% of that year's sales revenue
Number of ordinary shares in issue	17,000,000
Current share price	160p
Appropriate weighted average cost of capital	7% pa
Price earnings (p/e) multiple used to value recent takeovers in the chemical industry	17

You may assume that replacement non-current asset expenditure equals depreciation in each year.

On 31 May 2014 Sennen had short-term investments with a market value of £2 million currently yielding 3% pa and irredeemable debt with a market value of £10 million. The current gross yield on Sennen's debt is 5% pa.

Assume that corporation tax will be 21% of operating profits for the foreseeable future and that there are no other tax issues that need to be considered.

The management team of Sennen, which includes a member of the ICAEW, has been preparing a business plan to present to potential financial backers of a management buyout (MBO) that they intend to launch for the ordinary shares of the company. The intended MBO is not public knowledge.

Requirements

- (a) Prepare a report for the partner in NWCF which includes:
- (i) The estimated value of the ordinary shares of Sennen calculated using Shareholder Value Analysis (SVA) and an explanation of the strengths and weaknesses of this valuation method. **(13 marks)**
 - (ii) The sensitivity of the total value of Sennen (debt plus the value of equity calculated in (i) above) to a change in the after tax synergies. **(3 marks)**
 - (iii) The value of the ordinary shares of Sennen using the p/e method and an explanation of the strengths and weaknesses of this valuation method **(5 marks)**
 - (iv) A discussion of whether Morgan should offer the shareholders of Sennen a premium over its current share price given the valuations calculated in (i) and (iii). **(3 marks)**
 - (v) Advice on the suitability of each of the following methods that Morgan could use to pay for the ordinary shares of Sennen:
 - Cash
 - A share for share exchange
 - A loan stock for share exchange
 - Part cash and part share for share exchange.**(8 marks)**
- (b) Identify and briefly discuss the ethical issues faced by the MBO team should Morgan make an offer for the ordinary shares of Sennen. **(3 marks)**
- (35 marks)**

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this examination. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. More marks were available than could be awarded for some requirements. This allowed credit to be given for a variety of valid points that were made by candidates.

Question 1

Total Marks: 30

This was a five-part question which tested the candidates' understanding of the risk management element of the syllabus. In part (a) of the question the scenario was that a company had not hedged foreign exchange rate risk before and the managing director was considering using certain techniques to hedge. However he was not convinced that it was necessary and felt that he could estimate his exposure by looking at forward rates. In part (b) of the question candidates were required to demonstrate hedging the interest rate risk of a long-term loan.

(a) (i)

The forward contract:

The forward rates are calculated by deducting the premium from the spot rate:

Spot rates \$/£	1.6025
Forward premium	0.0021
Forward rates \$/£	1.6004

The payment will cost $\$940,000 / \$1.6004 = \text{£}587,353$

Currency futures:

Since we need to buy \$ we will **SELL** currency futures contracts (i.e. Selling £ on the futures exchange).

The number of contracts to sell: $(\$940,000 / \$1.5995) / \text{£}62,500 = 9.40$ contracts.

Rounding the number of contracts to **9** (or 10)

On 30 September the futures will be closed out and bought at \$1.5005. This will result in a profit of $(\$1.5995 - \$1.5005) \times (\text{£}62,500 \times 9) = \$55,688$.

Net payment $(\$940,000 - 55,688) / \$1.5002 = \text{£}589,463$

Over the counter call option:

Option premium = $(\$940,000) \times 4p = \text{£}37,600$

The total cost with interest = $\text{£}37,600 \times (1 + 0.06 \times 4/12) = \text{£}38,352$.

The spot price on 30 September is \$/£1.5002 Stelvio would **exercise** its option.

The cost of the payment would be $(\$940,000 / \$1.6100) + \text{£}38,352 = \text{£}622,202$

Well answered by many candidates. However, it was disappointing to note the following common errors made by a large minority of candidates on what should have been very straightforward, well rehearsed calculations which have been examined many times before: using the incorrect rate to calculate the number of futures contracts; making the incorrect decision on whether to buy or sell the contracts at the current date; incorrectly using techniques applicable to interest rate futures when dealing with currency futures; offsetting the gain on futures in \$ against the £ payment; omitting the interest on the OTC options premium, which is payable upfront; treating the OTC option as a traded option and in some cases applying the currency futures contract size to the OTC currency option.

Total possible marks	11
Maximum full marks	11

<p>(a) (ii) The forward contract and futures contracts both lock Stelvio into an exchange rate and do not allow for upside potential.</p> <p>Forwards:</p> <p>Tailored specifically for Stelvio</p> <p>However there is no secondary market</p> <p>Currency futures:</p> <p>Not tailored so one has to round the number of contracts</p> <p>Requires a margin to be deposited at the exchange</p> <p>Need for liquidity if margin calls are made</p> <p>However there is a secondary market</p> <p>OTC currency options:</p> <p>The options are expensive</p> <p>There is no secondary market</p> <p>However the options allow Stelvio to exploit upside potential and protect downside risk</p>	
Well answered by many candidates, however easy knowledge marks were often missed and it is estimated that 2 to 3 very basic marks were lost by weaker candidates.	
Total possible marks	9
Maximum full marks	9

<p>(a) (iii)</p> <p>Students should mention interest rate parity, purchasing power parity and expectations theory. The forward rate is an unbiased predictor of the future spot rate. Therefore FH could lose or gain depending on how the spot price moves, he cannot be confident in estimating the exposure. FH's attitude to risk could also be mentioned and that as Millar once stated, "not to hedge is to speculate".</p>	
Weaker candidates only described interest rate parity and purchasing power parity and made no reference to the scenario of the question and the managing director's views. As expected this was a discriminator.	
Total possible marks	4
Maximum full marks	4

(b) (i)

First it is necessary to calculate the interest rate differentials:

	Stelvio	Zeta	Differentials
Fixed rates	5%	3%	2%
Floating rates	LIBOR + 3%	LIBOR + 2%	1%
	Net differential		1%
	This net differential will be shared		0.5% each

The interest rates that can be achieved through the swap are:

	Stelvio	Zeta
The fixed market rate for Stelvio	5%	----
The floating market rate for Zeta	----	LIBOR + 2%
Less the differential	0.5%	0.5%
Rates achieved through the swap	4.5%	LIBOR + 1.5%

Cash flows would be: **LIBOR from Zeta to Stelvio and fixed of 1.5% from Stelvio to Zeta**

Well answered by many candidates but again weaker candidates lost 2 to 3 basic marks by not being able to calculate the swap gain and revised borrowing rates. These were basic calculations examined many times before.

Total possible marks	5
Maximum full marks	4

<p>(b) (ii)</p> <p>If LIBOR remains at 0.60% without the swap Stelvio would pay 0.60% + 3% = 3.6%</p> <p>With the swap Stelvio would be paying 4.5%</p> <p>LIBOR will have to rise to 4.5% - 3% = 1.5% for the swap to breakeven in interest terms.</p>	
Well answered by the better candidates and was, as expected, a discriminator.	
Total possible marks	2
Maximum full marks	2

Question 2

Total Marks: 35

This was a six-part question that tested the candidates' understanding of the financing options element of the syllabus. The scenario of the question was that a company was considering diversifying its activities. The diversification was to be financed in such a way that the gearing of the company remained unchanged. Part (a) of the question required candidates to calculate the current WACC of the company using CAPM and also the Gordon growth model. Part (b) of the question required candidates to calculate, using CAPM, the cost of equity to be included in the WACC that should have been used to appraise the new project. Part (c) of the question required candidates to calculate the overall WACC of the company after the diversification. Part (d) of the question required candidates to discuss whether the company should diversify its operations. Part (e) of the question required candidates to discuss how the project should have been appraised assuming that there was a major change in financial gearing of the company. Also candidates were required to calculate a discount rate that should have been used in these circumstances.

(a) (i) The current WACC using CAPM is calculated as follows:

$$K_e = 2 + 0.60 (8-2) = \mathbf{5.6\%}$$

$$K_d =$$

Debentures the cost can be calculated using linear interpolation

		5%		1%	
T0	(108)	1	(108)	1	(108)
T1-4	6	3.546	21.276	3.902	23.412
T4	100	0.823	82.3	0.961	96.1
			(4.424)		11.512

$$1\% + (11.512/11.512+4.424)(5-1) = \mathbf{3.89\%} \times (1-0.21) = \mathbf{3.1\% \text{ after tax}}$$

$$\text{Loans } 4(1-0.21) = \mathbf{3.16\%}$$

Market values:

Equity 233m/0.10 x 276p =	£6,431m
Debentures 1,900m x 108/100 =	£2,052m
Loans	£635m
Total market values	£9,118m

$$\text{WACC} = (5.6\% \times 6,431 + 3.1\% \times 2,052 + 3.16\% \times 635) / 9,118 = \mathbf{4.9\%}$$

(ii) The current WACC using the Gordon growth model is calculated as follows:

Calculating growth using the formulae $r \times b$.

Retentions rate:

$$\text{Dividends} = \text{share price} \times \text{dividend yield} = 276p \times 4.2\% = \mathbf{11.60p}$$

$$\text{Dividend payout ratio} = \text{dividend} / \text{EPS} = 11.60 / 25 = 46.4\%$$

$$\text{Retentions} = 1 - 0.464 = 0.536 \text{ or } \mathbf{53.6\%}$$

Shareholders return is calculated as follows:

$$\text{Profit after tax (PAT)} = \text{EPS} \times \text{number of shares in issue} = 25p \times 233/0.10 = \mathbf{£582.5m}$$

$$\text{Return} = \text{PAT} / \text{opg shareholders funds} = 582.4 / 5,263 - (2330 \times £0.134^*) = 11.77\%$$

$$^* \text{EPS} - \text{Dividend: } 25p - 11.6p = 13.40p$$

$$\text{Growth} = r \times b = 0.1177 \times 0.536 = 0.063 \text{ or } \mathbf{6.3\%}$$

$$K_e = (D_0(1+G)/P_0) + g = (11.60(1+0.063)/276) + 0.063 = \mathbf{10.76\%}$$

Kd and market values as in (i)

$$\text{WACC} = (10.76\% \times 6,431 + 3.1\% \times 2,052 + 3.16\% \times 635) / 9,118 = \mathbf{8.51\%}$$

Part (a) (i) was designed to give a basic eight marks to build on and was set at a textbook level with no tricks or complications. However, weaker candidates lost many of these marks by: completely ignoring the cost of a bank loan (2 marks) or not deducting tax (1 mark); incorrect calculation of the cost of the redeemable debentures, incorrect interpolation calculations, incorrect coupon and timing (3 marks), correct interpolation but no tax adjustment (1 mark); incorrect equity beta or correct beta but error in computation (1 mark). Part (a) (ii) was a discriminator as expected, however many candidates demonstrated poor knowledge of what a dividend yield is, many students multiplying earnings by the dividend yield.

Total possible marks

14

Maximum full marks

14

(b) The cost of equity should be adjusted to reflect the systematic risk of the new project. The beta factor for the holiday travel industry should be adjusted for gearing.

De gearing the equity beta. $B_a = 1.40 / (1 + (3(1-0.21)/5)) = \mathbf{0.95}$

Gear up the asset beta to reflect Turners's gearing

$B_e = 0.95 \times (1 + (2,687(1-0.21)/6,431)) = \mathbf{1.26}$

The K_e should be $= 2 + 1.26 (8 - 2) = \mathbf{9.56\%}$

With regard to the WACC to be used for the project students should state that the discount rate should reflect the **systematic risk of the project** and the **financial risk of the company**.

Again many basic errors were made: e.g. degearing using market values but regearing using book values, even though the formulae sheet states market values on the key to the formulae and despite the examiner's comments regarding March 2014, omitting tax completely from the computations and poor mathematical ability using beta equations. Also no explanation of what candidates were doing threw away 2 marks in this section.

Total possible marks	6
Maximum full marks	6

(c) If the diversification goes ahead the cost of equity will reflect the systematic risk of both divisions.

The weighted average beta of the enlarged group $= 1.26 \times 0.10 + 0.6 \times 0.90 = \mathbf{0.666}$

$K_e = 2 + 0.666(8-2) = \mathbf{6.00\%}$

The WACC of the enlarged group will be:

$(6\% \times 6431 + 3.1\% \times 2,052 + 3.16\% \times 635) / 9,118 = \mathbf{5.15\%}$

The implications for a permanent change in the company's WACC from 4.9% to 5.15% is less clear. An increase in the WACC is usually associated with reductions in value, on the other hand assuming that the new project has a positive net present value this could result in an increase in the market capitalisation.

[Capital structure theory; max 2 marks]

This section was well answered by many candidates. However in the discursive part of their answers some candidates mainly discussed capital structure theory.

Total possible marks	6
Maximum full marks	6

(d) The diversification plans may not be welcomed by the market. Portfolio theory tells us that rational shareholders would hold a well diversified portfolio and that they might not welcome the company diversifying. Conglomerate companies usually trade at a discount.

[EMH; max 3 marks]

Very mixed responses but flexible marking allowed candidates to pick up 2 to 3 marks.

Total possible marks	5
Maximum full marks	5

(e) Students should mention that if the gearing changes dramatically then it is not suitable to use WACC/NPV to appraise the project. Instead APV should be used.

The discount rate will be that of an all equity company using the B_a of 0.95 to reflect the systematic risk.

The discount rate will be $= 2 + 0.95(8-6) = 7.7\%$.

This will be used to calculate the base case NPV. This will then be adjusted for the benefits and costs of the actual way that the project has been financed.

Most candidates mentioned APV but many did not calculate the discount rate needed.

Total possible marks	4
Maximum full marks	4

Question 3

Total Marks: 35

This was a seven-part question that tested the candidates' understanding of the investment decisions element of the syllabus. The scenario of the question was that a company had identified a takeover target. The acquirer having had a policy of expanding by acquisition and, as a result, is highly geared compared to its peers. Also there is a potential bid from the management of the target in the form of a management buyout (MBO). Part (a) (i) of the question required candidates to use Shareholder Value Analysis (SVA) to value the target. The valuation included after tax synergies, also candidates were required to state the strengths and weaknesses of the valuation method. Part (a) (ii) of the question requires candidates to calculate how sensitive the valuation using SVA was to a change in the synergies. Part (a) (iii) of the question required candidates to value the target using p/e ratios and to state the strengths and weaknesses of the valuation method. Part (a) (iv) of the question required candidates to discuss the range of values and whether the acquirer should have offered the target company's shareholders a bid premium. Part (a) (v) of the question required candidates to discuss the methods that the acquirer could have used to pay for the shares of the target. Part (b) of the question required candidates to discuss the ethical position of the members of the MBO team.

(a) (i)

	0	1	2	3
	£m	£m	£m	£m
Sales revenue		21	22.05	23.15
Operating profit		3.15	3.31	3.47
Tax		-0.66	-0.7	-0.73
After tax synergies		0.53	0.55	0.58
Working capital	-0.21	-0.22	-0.23	-0.24
Additional CAPEX		-0.42	-0.44	-0.46
Free cash flow	-0.21	2.38	2.49	2.62
Present value factor	1	0.935	0.873	0.816
Present value	-0.21	2.23	2.17	2.14
				£m
Present value of free cash flow years 0-3				6.33
Terminal value: $2.14(1+0.02)/0.07-0.02$				43.61
Enterprise value				49.94
Less debt				-10.00
Add short term investments				2.00
Equity				41.94
Value per share in pence				247

This methodology has the advantage of valuing the free cash flows of the company and is not distorted by accounting policies which can affect other methods. However the valuation is dominated by the terminal value. The methodology is also heavily dependant upon the inputs to the model such as estimating cash flows and growth. For example, reducing the estimated sales growth after the competitive advantage period to, say, 1% would reduce the terminal value to $2.14(1+0.01)/0.07-0.01 = £36m$ a reduction of 45p per share.	
The basic discounting was fine with some candidates making the usual timing errors, however the inclusion and computation of the perpetuity flow and discounting it was variable. Few candidates made adjustments to the present value of the free cash flows for the debt and investments. Many candidates wasted time by stating the 7 drivers of SVA, which was not required.	
Total possible marks	15
Maximum full marks	13

(a) (ii)			
The sensitivity of the enterprise value to a change in the after tax synergies.			
Pv of synergies/total value			
	1	2	3
	£m	£m	£m
After tax synergies	0.53	0.55	0.58
PV @ 7%	0.5	0.48	0.47
			<u>£m</u>
Present value years 1-3			1.45
Amount in terminal value			<u>9.65</u>
Total present value of synergies			<u>11.1</u>
£11.1m/£51.94 = 21%.			
Synergies represent 21% of the value of debt plus equity.			
Many candidates were able to calculate the present value of the after tax synergies but did not realise that this should then be stated as a percentage of the value calculated in part (a) (i).			
Total possible marks	3		
Maximum full marks	3		

(a) (iii)	
The earnings per share has to be calculated:	
	£m
Operating profit £20m x 0.15	3
Less interest £10 x 0.05	(0.5)
Add investment income £2 x 0.03	0.06
Taxable	<u>2.56</u>
Tax at 21%	(0.54)
Profit after tax	<u>2.02</u>
Earnings per share	£2.02m/17m = 11.88p
[NB credit any attempt to calculate prospective EPS rather than historic]	
The share price using the p/e ratio for recent takeovers = 11.88p x 17 = 202p	
The p/e ratio basis is a market measure and has the advantage of valuing the shares by comparison to other takeovers. However we do not know how comparable to Sennen the other companies are. Also the valuation is based on historic EPS and a more realistic measure might be a prospective EPS.	

Very disappointing since p/e valuations have been tested several times in the past. Many candidates lost marks by making no attempt to calculate the earnings. Instead a common calculation was to divide the target share price by the p/e ratio given in the question for recent takeovers in the sector and then multiplying the resultant figure back up again: $17 \times \text{eps} = 160\text{p}$, $\text{eps} = 9.41\text{p}$, Offer price = $9.41\text{p} \times 17 = 160\text{p}$!	
Total possible marks	5
Maximum full marks	4

(a) (iv) The range in values is 202p – 247p	
The free cash flow valuation can be considered as a maximum value, however the valuation is quite sensitive at 21% to the synergistic savings which may or may not be made and the growth rate of sales in perpetuity.	3
Both measures offer a premium to the current share price of 160p and the Board of Morgan should feel comfortable offering the shareholders of Sennen a bid premium.	
Reasonable responses. However weaker candidates did not make reference to their range of values calculated in (a) (i) and (a) (iii).	
Total possible marks	3
Maximum full marks	3

(a) (v) Students should take into account that the company is highly geared and their answers should reflect this. They should consider both the shareholders of Sennen and Morgan in their answers. Some areas that they may mention and expand upon for each method are as follows:	
<ul style="list-style-type: none"> • The ability of Morgan to raise extra funds by borrowing and/or an issue of shares, maybe a rights issue • Does Morgan have any cash reserves • Dilution of control • The tax position of Sennen's shareholders • Risk 	8
Quite well answered but weaker candidates did not refer to the offeror being already highly geared compared to its peers.	
Total possible marks	8
Maximum full marks	8

(b) There is a savage conflict of interest with the management team who are party to the MBO also considering making an offer for the company. The management team should be acting in the interests of the shareholders of Sennen and be recommending to the shareholders the best price for their shares. It would be highly unethical for any member of the management team who are party to the MBO to take part in negotiations with Morgan or to make recommendations to Sennen's shareholders.	
Many candidates ignored the ethical position of the members of the MBO team.	
Total possible marks	3
Maximum full marks	3



FINANCIAL MANAGEMENT

This paper consists of **THREE** questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet. You will be given time to sign, date and print your name on the answer booklet, and to enter your candidate number on this question paper. You may not write anything else until the exam starts.
2. Answer each question in black ballpoint pen only.
3. Answers to each question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.
5. When the assessment is declared closed, you must stop writing immediately. If you continue to write (even completing your candidate details on a continuation booklet), it will be classed as misconduct.

A Formulae Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must **NOT** be removed from the examination hall.

DO NOT TURN OVER UNTIL YOU ARE INSTRUCTED TO BEGIN WORK

You **MUST** enter your candidate number in this box.

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1a. You should assume that the current date is 31 May 2015

Eurocycle plc (Eurocycle) imports high value road bikes from several manufacturers in Europe and sells them to the public in its own stores throughout the UK. On 30 September 2015 Eurocycle has a payment to make to its suppliers of €8,200,000.

The following data is available to you at the close of business on 31 May 2015:

Spot exchange rate (€/£)	1.2789 – 1.2797
Four-month forward rate premium (€/£)	0.0026 – 0.0024

Annual borrowing and depositing interest rates:

Euro	3.90% – 2.90%
Sterling	4.00% – 3.20%

Four-month over the counter (OTC) currency options:

- Call options to buy £ have an exercise price of €/£1.2770 and a premium of £0.005 per € converted.
- Put options to sell £ have an exercise price of €/£1.2765 and a premium of £0.001 per € converted.

Option premiums are payable on 31 May 2015 and Eurocycle currently has an overdraft.

A foreign currency dealer has provided the finance director of Eurocycle with an estimate of the €/£ spot rate on 30 September 2015 of €/£ 1.2783 – 1.2793.

Requirements

- (i) Calculate Eurocycle's sterling payment and explain, with reasons, which hedging technique is preferable, assuming that it hedges its foreign exchange rate risk using either of the following:
- a forward contract
 - a money market hedge.
- (7 marks)**
- (ii) Given the estimated spot rate provided by the foreign currency dealer, discuss, with reasons:
- whether Eurocycle should in fact hedge its euro payment using a forward contract or a money market hedge; and
 - the likelihood of the currency dealer being able to outperform the forward market.
- (5 marks)**
- (iii) Explain to the finance director of Eurocycle how an OTC currency option might be used to hedge the company's exposure to foreign exchange rate risk and advise him of what action to take on 30 September 2015 if the €/£ spot rate is:
- in line with the forward market
 - in line with the foreign currency dealer's estimate
- (8 marks)**

- 1b.** Eurocycle is seeking to expand and has recently borrowed £100 million for a period of ten years to purchase a number of properties throughout the UK. The borrowings are at a floating rate of LIBOR +5% pa. LIBOR is currently 0.7% pa. The finance director of Eurocycle believes that interest rates are going to rise over the next ten years and he would like to protect the company against this interest rate risk.

The finance director has been in contact with Netflix plc (Netflix), a company that would like to swap £100 million of its fixed rate loans to a floating rate. It has been agreed that any benefits from the swap will be shared equally between Eurocycle and Netflix. Eurocycle can borrow at a fixed rate of 7.0% pa. Netflix has borrowed at a fixed rate of 5.5% pa and could borrow at a floating rate of LIBOR +4% pa.

Requirements

- (i) Demonstrate how the proposed interest rate swap between Eurocycle and Netflix would be implemented with the floating leg of the swap set at LIBOR. **(4 marks)**
- (ii) Calculate the initial difference in annual interest rates for Eurocycle if it enters into the interest rate swap with Netflix and calculate the minimum amount by which LIBOR will have to rise for the swap to breakeven for Eurocycle. **(2 marks)**
- (iii) Identify four advantages for Eurocycle of entering into an interest rate swap with Netflix. **(4 marks)**

Total: 30 marks

2. You should assume that the current date is 30 June 2015

Bluesky Entertainments plc (Bluesky) is a company listed on the London Stock Exchange (LSE) which operates entertainment facilities throughout the UK. Bluesky is seeking to diversify and expand its activities by opening a new aquatic adventure park called Waterworld and has asked a market research company, for a fee of £100,000, to estimate the number of visitors in the first year of operation and the potential for growth. The Waterworld project would be a major undertaking for Bluesky and, subject to a satisfactory project appraisal, the details will be made public in an announcement to the LSE. One of the Bluesky board members has suggested that it would be a good idea to advise their close family members to buy shares in Bluesky shortly before any public announcement is made.

It has come to the attention of the board that a competitor, Underseaworld, which specialises in sea-based entertainment facilities in the USA, is considering expanding into the UK. Underseaworld has identified a suitable location in the UK and has applied for planning permission to develop the site. However, it will be a year before the planning decision is made as to whether Underseaworld will be allowed to start development of the site.

The market research company has produced a report that gives an indication of the forecast numbers of visitors to Waterworld in the first year of operations to 30 June 2016, together with associated probabilities and the forecast growth in the number of visitors for the next three years. The estimated visitor numbers in the first year are:

Number of visitors	Probability
12,000,000	50%
9,000,000	30%
6,000,000	20%

Visitor numbers in the following three years to 30 June 2019 would remain at the first year's expected level adjusted for growth of 5% pa.

You are an ICAEW Chartered Accountant and the finance director of Bluesky. You intend to appraise the Waterworld project at 30 June 2015 using net present value analysis.

Additional cost and revenue information relating to the Waterworld project:

- The estimated sales revenue per visitor will be £34 in the first year of operations. After 30 June 2016 sales revenue per visitor is expected to increase by the general rate of inflation of 2.5% pa. Contribution is 40% of sales.
- Incremental selling and administration expenses in the year to 30 June 2016 are estimated to be £90 million and will increase at the rate of 4% pa thereafter.
- On 30 June 2015 the project requires an investment in working capital of £35 million, which will increase at the start of each year in line with sales volume growth and sales price increases. Working capital will be fully recoverable on 30 June 2019.
- On 30 June 2015 the project will require an investment in land of £40 million and plant and equipment of £500 million. It is estimated that on 30 June 2019 (in 30 June 2019 prices) the land will have a value of £80 million after tax and the plant and equipment will have a value of £120 million before tax. The plant and equipment will attract 18% (reducing balance) capital allowances in the year of expenditure and in every subsequent year of ownership by the company, except the final year.

In the final year, the difference between the plant and equipment's written down value for tax purposes and its disposal proceeds will be treated by the company either:

- (i) as a balancing allowance, if the disposal proceeds are less than the tax written down value, or
 - (ii) as a balancing charge, if the disposal proceeds are more than the tax written down value.
- Assume that the rate of corporation tax will be 21% pa for the foreseeable future and that tax flows arise in the same year as the cash flows that gave rise to them.
 - Bluesky has a money weighted average cost of capital (WACC) of 8% pa. However, because of the nature and size of the Waterworld project the managing director of Bluesky feels that the rate should be increased by 2%, to 10% pa.
 - You intend to include in the net present value analysis a continuing value at the end of four years that will represent the value of the net cash flows after tax beyond the fourth year. This will be calculated as a multiple of nine times the expected after tax operating cash flows for the year ended 30 June 2019.
 - Unless otherwise stated you should assume that all cash flows arise at the end of the year to which they relate.

Information relating to Bluesky excluding the Waterworld project:

- Issued 10p ordinary shares with a total nominal value of £9 million.
- Ex-div share price at 30 June 2015 is £12 per share.

Requirements

- (a) Using money cash flows, calculate the expected net present value of the Waterworld project on 30 June 2015 and advise Bluesky's board whether it should accept the project. **(16 marks)**
- (b) **Ignoring the effects on working capital**, calculate the sensitivity of the Waterworld project to changes in sales revenue and discuss this sensitivity with reference to the visitor numbers and associated probability estimates provided by the market research company. **(5 marks)**
- (c) Identify and explain **TWO** real options associated with the Waterworld project. **(4 marks)**
- (d) Discuss whether the managing director of Bluesky is justified in simply adding 2% to the company's current WACC when appraising the Waterworld project and outline an alternative way of arriving at a discount rate for the project. **(4 marks)**
- (e) Assuming the Waterworld project goes ahead, explain and calculate the likely effect on Bluesky's share price after it makes the public announcement to the LSE. **(3 marks)**
- (f) Outline the ethical and legal issues for you as an ICAEW Chartered Accountant, regarding the suggestion by the board member that their close family members should be advised to buy shares in Bluesky shortly before the announcement of the Waterworld project. **(3 marks)**

Total: 35 marks

3. Silverdale plc (Silverdale) is a listed manufacturer of domestic and commercial cleaning products. Silverdale sustained losses for several years but has recently returned to profit. It is now 31 May 2015 and the board is currently planning the company's expansion over the next two financial years to 31 May 2016 and 31 May 2017.

Silverdale has secured a contract to supply a new range of domestic cleaning products to a large chain of supermarkets. To fulfil the contract Silverdale will need to purchase additional plant and machinery on 1 June 2015 at a cost of £75 million and will raise this amount on that date from one of the following two sources of finance:

- (i) A rights issue at a discount of 20% on the current ex-div market price of Silverdale's shares of 586p.
- (ii) An issue of debentures at par. These would have a coupon equal to the gross redemption yield of Silverdale's existing 7% coupon debentures, which are now trading at £95 ex-interest and have three years until redemption at par.

The board notes that the industry in which Silverdale operates has an average gearing ratio (debt/equity by book values) of 50% and an interest cover of 20.

It is anticipated that expansion in the year to 31 May 2017 will be financed from cash surpluses accumulated at the end of the year to 31 May 2016. However, the board is concerned about the company's current ratio and would like to ensure that, at 31 May 2016, it is approaching the industry average of 2:1.

The finance director of Silverdale has established the following information regarding the impact of the new contract on Silverdale's management accounts in the year to 31 May 2016:

- The company's revenue is expected to increase by 15%.
- Capital allowances can be assumed to be equal to the depreciation charged in a particular year.
- It is expected that direct costs, other than depreciation, will increase by 16%.
- Indirect costs are expected to increase by £12 million.
- Inventory is expected to increase by £15 million.
- The ratio of receivables to sales and payables to direct costs (excluding depreciation) will remain the same as in the year to 31 May 2015.
- Depreciation of existing and new plant and machinery is 20% pa on a reducing balance basis.
- Tax is payable at a rate of 21% pa in the year in which the liability arises.
- Dividends are payable in the year following their declaration and the board of directors has confirmed its intention to maintain the company's current dividend payout ratio of 50% for the foreseeable future.

Extracts from Silverdale's most recent management accounts are shown below:

Income Statement for the year ended 31 May 2015

	£'000
Revenue	780,000
Direct costs (including depreciation of £36 million)	(468,000)
Indirect costs	(225,000)
Operating profits	87,000
Interest	(4,200)
Profit before tax	82,800
Taxation	(17,388)
Profit after tax	65,412
Dividend (declared)	32,706

Balance Sheet at 31 May 2015

	£'000	£'000
Plant and machinery (net book value)		144,000
Current assets: Inventory	60,000	
Trade receivables	130,000	190,000
		334,000
50p Ordinary shares		40,000
Retained earnings		81,000
7% Debentures at par value		60,000
Current liabilities: Trade payables	95,000	
Bank overdraft	25,294	
Dividends payable	32,706	153,000
		334,000

Requirements

- (a) **For each of the financing alternatives being considered**, prepare a forecast Income Statement for the year ended 31 May 2016 and a forecast Balance Sheet at 31 May 2016. **(18 marks)**

Note: Ignore transaction costs on the issuing of new capital and returns on surplus cash invested in the short term.

- (b) Write a report to Silverdale's board that includes:
- Calculations of Silverdale's gearing (debt/equity by book values), interest cover and earnings per share at 31 May 2015 and at 31 May 2016 for the two potential methods of financing the purchase of the new plant and machinery. **(4 marks)**
 - With reference where appropriate to your calculations in b(i), an evaluation of the two potential methods of financing the purchase of the new plant and machinery. **(10 marks)**
 - An evaluation of whether the expansion in the year to 31 May 2017 can be financed from the forecast cash resources at 31 May 2016. **(3 marks)**

Total: 35 marks

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. More marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

Question 1

Total Marks: 30

General comments	
<p>This was a six-part question which tested the candidates' understanding of the risk management element of the syllabus. The scenario was that a UK company had a euro payment to make in four months time and it wished to hedge its foreign exchange rate risk. Also the company wished to hedge long-term borrowings by using an interest rate swap.</p>	
<p>(a) i The payment to be made in four months time on 30 September 2015 is €8,200,000 The four month forward exchange rate is €/£1.2763 (€1.2789 - €0.0026)</p> <p>The forward contract will result in a sterling payment of £6,424,822 (€8,200,000/€1.2763)</p> <p>Using the money markets, Eurocycle will make an investment in euros, buy euros at the spot rate and borrow in sterling:</p> <p>Investment: €8,200,000/(1+0.029x4/12) = €8,121,492 Buy euros spot: €8,121,492/€1.2789 = £6,350,373 Borrow in sterling giving a total cost of: £6,350,373 x (1+0.04x4/12) = £6,435,045 (An effective rate of €/£1.2743 (8,200,000/6,435,045))</p> <p>The forward contract results in a lower sterling cost for the euro payment in four months time and is therefore preferable. Additional comments that students may mention are that a forward contract is less complex and require less management time than a money market hedge.</p>	
<p>Well answered by many candidates, however, some students wasted a lot of time by giving lengthy explanations of the techniques, which was not required. It was disappointing to note the following common errors on what should have been very straightforward, well rehearsed, calculations which have been examined many times before: choosing the incorrect exchange rate; adding premiums to the spot rate rather than deducting; choosing the incorrect interest rates and spot rate for the money market hedge. It was interesting to note that when giving advice, even though the forward contract resulted in the cheaper sterling payment, some students recommended the more expensive money market hedge! Very few students gave any reason, other than cost, as to why a particular technique should be chosen.</p>	
Total possible marks	7
Maximum full marks	7

<p>(a) ii The estimated future spot exchange rate of €/£1.2783 is more attractive than the forward rate of €/£1.2763 and the effective rate achieved through a money market hedge of €/£1.2743. It would therefore appear that the company should not hedge the currency exposure and would be better off waiting to convert the euro payment at the future spot rate (€8,200,000/1.2783 = £6,414,770).</p> <p>However, Eurocycle should consider whether the foreign currency dealer has private information that is not reflected in the current market rates and why he is willing to share this with the company.</p> <p>Without private information it would, in general, be difficult to outperform the foreign exchange market as the forward rate is an unbiased estimate of the future spot ie on average it is correct.</p>	
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Not well answered by the majority of students, with few giving a reasonable explanation of why the currency dealer's estimate of the future spot rate might be inaccurate. The team had set this requirement before, so this was disappointing.

Total possible marks	5
Maximum full marks	5

- (a) iii** A currency option contract gives the holder the right but not the obligation to buy or sell currency at an exchange rate agreed now for delivery in the future. However there will be a cost for this in the form of the option premium. The option allows Eurocycle to take advantage of upside potential whilst protecting downside risk.

Eurocycle will use a **put** option to sell sterling for euros at the exercise price of €/£1.2765.

The option premium will be payable on 31 May 2015 and the total cost together with interest thereon will be: Premium: €8,200,000 x £0.001 = **£8,200**

Total cost with interest: £8,200 x (1+0.04x4/12) = **£8,309**

If the spot rate on 30 September 2015 is in line with forward market expectations at €/£1.2763 Eurocycle would exercise the put options which would result in a sterling cost of:

(€8,200,000/€1.2765) + £8,309 = **£6,432,124**

If the spot rate on 30 September 2015 is in line with the currency dealer's estimate at €/£1.2783 Eurocycle would let the options lapse which would result in a sterling cost of:

(€8,200,000/€1.2783) + £8,309 = **£6,423,079**

Responses to this part of the question were mixed and, despite comments in previous reports, many students were making very basic errors, such as: treating an over the counter option like a traded option; inventing a contract size for an OTC option; treating the option premium, which was payable in sterling, as a payment in euros and converting it to sterling; omission of the interest cost of paying the option premium upfront (despite a clear signal in the question that this was required using an agreed form of words requested by the tutors); confusion of calls and puts, even when the questions stated that calls were to buy £ and puts were to sell £. Few students explained the advantages and disadvantages of using options.

Total possible marks	8
Maximum full marks	8

- (b) i** First it is necessary to calculate the interest rate differentials:

	Eurocycle	Netfix	Differentials
Fixed rates	7%	5.5%	1.5%
Floating rates	LIBOR + 5%	LIBOR + 4%	1.0%
	Net differential		0.5%
	This net differential will be shared		0.25% each

The interest rates that can be achieved through the swap are:

	Eurocycle	Netfix
Fixed market rate	7%	---
Floating market rate	---	LIBOR + 4%
Less the differential	0.25%	0.25%
Rates achieved through the swap	6.75%	LIBOR + 3.75%

Cash flows would typically be: **LIBOR from Netfix to Eurocycle and fixed of 1.75% from Eurocycle to Netfix**

Well answered by many students however it was very difficult to follow the computations which were provided in some answers.

Total possible marks	4
Maximum full marks	4

- (b) ii** On its floating rate borrowings Eurocycle is currently paying 5.70% pa (0.70% + 5.00%). Through the swap Eurocycle will be paying a fixed rate of 6.75% pa. The initial difference in interest rates is 1.05% pa (6.75% - 5.70%).

For the swap to breakeven for Eurocycle LIBOR would have to rise by 1.05% pa to 1.75% pa (1.05% + 0.70%)

Well answered by many students however a number of responses failed to explain the minimum amount by which LIBOR would have to rise, in interest rate terms, for the swap to breakeven.

Total possible marks	2
Maximum full marks	2

- (b) iii** The advantages to Eurocycle of an interest rate swap include:

- The arrangement costs are significantly less than terminating an existing loan and taking out a new one.
- Interest rate savings are possible either out of the counterparty or out of the loan markets by using the principle of comparative advantage.
- They are available for longer periods than the short-term methods of hedging such as FRAs, futures and options.
- They are flexible since they can be arranged for tailor-made amounts and periods. Also they are reversible.
- Obtaining the type of interest rate, fixed or floating, that the company wants.
- Swapping to a fixed interest rate for Eurocycle will assist in cash flow planning.

Well answered by many students, however some of the advantages suggested were not applicable to interest rate swaps.

Total possible marks	6
Maximum full marks	4

Question 2**Total Marks: 35****General comments**

This was a six-part question that tested the candidates' understanding of the investment decisions element of the syllabus. The scenario of the question was that a company is expanding its operations by diversifying and opening a new entertainment facility.

(a)

£ millions	t0	t1	t2	t3	t4
Contribution		134.64	144.91	155.96	167.85
Fixed Costs		(90.00)	(93.60)	(97.34)	(101.23)
Operating cash flows		44.64	51.31	58.62	66.62
Tax 21%		(9.37)	(10.78)	(12.31)	(13.99)
After tax operating cash flows		35.27	40.53	46.31	52.63
Property, plant and equipment	(500.00)				120.00
Land	(40.00)				80.00
Tax saved on Ca's	18.90	15.50	12.71	10.42	22.27
Working Capital	(35.00)	(2.67)	(2.87)	(3.09)	43.63
Continuing value					473.67
Net cash flows	(556.10)	48.10	50.37	53.64	792.20
PV factors at 10%	1.00	0.91	0.83	0.75	0.68
Present value	(556.10)	43.72	41.61	40.28	541.07
NPV	110.58				
Positive NPV, therefore accept					

Note: If the resale value of the land is not included marks will still be awarded on the basis that there is a continuing value and therefore the same site, and therefore land, will not be replaced.

Expected sales and contribution

Probability (p)	Visitors million	Sales £ million	p x Sales £ million
0.5	12	408	204.00
0.3	9	306	91.80
0.2	6	204	40.80
Expected Sales	9.9m x	£34 =	336.60

Sales revenue is £34 per visitor.

For stating that the market research of £100,000 should not be included as it is a sunk cost

Contribution in year 1 = $£336.6 \times 0.40 = £134.64$ million.

Contribution in year 2 = $£134.64 \times 1.05 \times 1.025 = £144.91$ million

Contribution in year 3 = $£144.91 \times 1.05 \times 1.025 = £155.96$ million

Contribution in year 4 = $£155.96 \times 1.05 \times 1.025 = £167.85$ million

Continuing value = $52.63 \times 9 = £473.67$ million

Working capital

Year 1 = $(-35 \times 1.05 \times 1.025) - 35 = £-2.67$ million

Year 2 = $(-37.67 \times 1.05 \times 1.025) - 37.67 = £-2.87$ million

Year 3 = $(-40.54 \times 1.05 \times 1.025) - 40.54 = £-3.09$ million

Year 4 = $40.54 + 3.09 = £43.63$ million

Capital allowances and the tax saved thereon £ millions			
Timing	Cost/WDV	CA	Tax
0	500.00	90.00	18.90
1	410.00	73.80	15.50
2	336.20	60.52	12.71
3	275.68	49.62	10.42
4	226.06		
Sale	(120.00)	106.06	22.27

Well answered by most students. The project appraisal was to be carried out using NPV analysis and the question was designed to give up to ten basic marks, however some errors that many candidates made were: incorrect adjustments for inflation and growth; treating the contribution as 60% of sales instead of 40%; incorrect working capital computations; calculating capital allowances on the value of the land; discounting the cash flows at 8% rather than 10%; incorrect continuing value computations; not discounting the continuing value; omitting to comment that the market research is a sunk cost and should not be included in the NPV analysis.

Total possible marks	16
Maximum full marks	16

(b)

Sensitivity

	t1	t2	t3	t4
Contribution X (1-0.21)	106.37	114.48	123.21	132.60
Continuing value				1193.40
	106.37	114.48	123.21	1326.00
PV factors at 10%	0.91	0.83	0.75	0.68
Present Value	97.00	95.00	93.00	906.00
Total present value	1191.00			

Sensitivity =
 $110.58/1191 = 9\%$

A fall in sales of £336.6 million to: $336.6(1-0.09) = £305.35$ million will result in a zero NPV.

There is a 50% chance that sales will be less than £305.35 million. The management of Bluesky will have to consider whether it is willing to accept this level of risk. Especially since a competitor is likely to enter the market.

Many basic errors were made in the sensitivity computations: using sales instead of contribution; omitting tax; incorrect application of the formula for sensitivity; no, or little, reference to the probability distribution of sales.

Total possible marks	7
Maximum full marks	5

(c)

Underseaworld has already identified a site to launch its operations in the UK, therefore this will increase the uncertainty of the Waterworld project revenues. In the circumstances Bluesky might consider waiting to start the project until the decision regarding the planning permission that Underseaworld has applied for has been made. The real option regarding the decision to delay the start of the Waterworld project is a Timing option.

Bluesky could start the project at time zero and has the option to abandon the project should Underseaworld commence their project and erodes the profitability of Waterworld.

Bluesky also has the option to continue after four years, this is a Follow-on-option.

Bluesky could expand facilities at the new site, or open new sites, this is a Growth option.

Only 2 need be discussed

It was disappointing to note that in this section many students did not refer to the scenario of the question and made no mention of the competitor that might be entering the market. Students would be well advised to ensure that they relate answers to the scenario of the question and not just brain dump everything that they know about real options. At this level we do not provide superfluous information in the questions.

Total possible marks	6
Maximum full marks	4

(d)

Bluesky has an equity market capitalisation of $(£9m/0.10) \times £12 = £1,080$ million. The Waterworld project requires an investment of $(£500+£40+£35) = £575$ million. This is over half the current market capitalisation. Raising this amount of finance might affect the company's gearing and financial risk. The Waterworld project is also a diversification from Bluesky's current operations, which will affect its business systematic risk.

Simply adding a "fudge figure" of 2% to the current WACC of the company is not appropriate and the finance director of Bluesky should consider:

1. How to accurately measure the systematic risk of the Bluesky project. This can be achieved by adjusting the cost of equity by using an equity beta from a comparable company that reflects the systematic risk of the project. However gearing adjustments may have to be made.
2. The size of the Waterworld project may mean that Bluesky's gearing will materially change and it would not be appropriate to use the WACC/NPV project appraisal methodology. Instead it would be more appropriate to appraise the Waterworld project using the Adjusted Present Value model.

Reasonably well answered. However it was disappointing to note that some students suggested that the IRR should be used as the discount rate. It was also disappointing that not many students related the size of the project to the market capitalisation of the company and the potential implications for the gearing of the company and the type of project appraisal technique that could be used. Few students mentioned that the project was a diversification and that the systematic risk of the new project should be reflected in the discount rate.

Total possible marks	6
Maximum full marks	4

(e)

Assuming that the UK stock market is semi-strong form efficient and reacts instantaneously to public information, when Bluesky makes an announcement in the Stock Market regarding the Waterworld project the share price will immediately reflect the new information.

The increase, or decrease, in price will depend on whether the markets have confidence that the project will indeed be successful.

Assuming that the markets believe this project will be successful, the share price will increase by: $(£110.58/90) = 123\text{p}$ per share. Giving a new share price of $£12 + £1.23 = £13.23$. However several factors might mean that the price is below £13.23, the presence of the Underseaworld expansion into the UK and the size of the project may make the markets cautious.

Many students adjusted the current share price by the NPV per share of the project. However the explanations as to whether the actual share price would equal their figure were varied. Few students mentioned the EMH and/or the LSE's reaction to the public announcement about the project. It was also disappointing that, again, few students related their answers to the scenario of the question and mentioned the competitor that is likely to come into the market. Also the project was a diversification, which might also affect the LSE's confidence in the future of the company and therefore the share price.

Total possible marks	4
Maximum full marks	3

(f)

The suggestion that close family members of the board should buy shares in Bluesky before the announcement about the Waterworld project is made is highly unethical, since they will be supplied with price sensitive information that has not yet been made public. It is also insider trading and illegal.

This part was well answered by the majority of candidates. However it is a little worrying that some weaker candidates thought that as long as the board members did not buy shares themselves, it was acceptable to advise family members to buy shares in advance of the public announcement about the project.

Total possible marks	3
Maximum full marks	3

Question 3

Total Marks: 35

This was a four-part question that tested the candidates' understanding of the financing options element of the syllabus. The scenario was that a company that is planning its expansion over the next two years is uncertain about how to raise the finance that will be required. The choice of finance being either a rights issue or an issue of debentures.

(a)

Forecast Income Statement for the year ended 31 May 2016

	Rights Issue £'000	Debenture Issue £'000
Revenue (£780,000 x 1.15)	897,000	897,000
Direct costs (see working)	544,920	544,920
Indirect costs (£225,000 + £12,000)	237,000	237,000
Operating profits	115,080	115,080
Interest	4,200	-----
Interest (£4,200 + £75m x 9%)	-----	10,950
Profit before tax	110,880	104,130
Taxation	23,285	21,867
Profit after tax	87,595	82,263
Dividend (declared)	43,798	41,131

Direct costs: (£468,000 - £36,000) x 1.16 + ((£144,000 + £75,000) x 0.20) = £544,920

Forecast Balance Sheet at 31 May 2016

	Rights Issue £'000	Debenture Issue £'000
Non-current assets		
Plant and Machinery (NBV) (£144,000 + £75,000) x 0.80	175,200	175,200
Current Assets		
Inventory (£60,000 + £15,000)	75,000	75,000
Trade receivables (£130,000 x 1.15)	149,500	149,500
Cash (Balancing figure)	54,095	48,763
	278,595	273,263
	453,795	448,463
Capital and reserves		
50p Ordinary shares (see working)	48,000	40,000
Share premium	67,000	-----
Retained earnings (£81,000 + £43,797)	124,797	-----
Retained earnings (£81,000 + £41,132)	-----	122,132
	239,797	162,132
Non-current liabilities		
7% Debentures at par value	60,000	60,000
9% Debentures at par value	-----	75,000
	60,000	135,000
Current liabilities		
Trade payables (£95,000 x 1.16)	110,200	110,200
Dividends payable	43,798	41,131
	153,998	151,331
	453,795	448,463

Rights Issue: Issue price 586p x 0.80 = 469p. The number of shares to be issued will be: £75m/469p = 15.99m say 16m. The nominal value is: 16m x 50p = £8m.
The share premium is £75m - £8m = £67m.

The redemption yield of the current 7% debentures is:

Time	Cash flow £	Factors at 5%	P.V. £	Factors at 10%	P.V. £
0	(95)	1.000	(95.000)	1.000	(95.000)
1	7	0.952	6.664	0.909	6.363
2	7	0.907	6.349	0.826	5.782
3	107	0.864	92.448	0.751	80.357
NPV			10.461		(2.498)

$$RY = 5 + (10.461/10.561 + 2.498) \times 5 = 9\%$$

The redemption yield and coupon of the new debenture issue at par will therefore be 9%.

This part of the question was quite well answered with many students presenting reasonable projected income statements and balance sheets. Common errors were incorrect calculation of the interest for the debenture issue; omission of the existing debt after the debenture issue; incorrect calculation of the nominal value of the new shares to be issued for the rights issue; omission of the share premium.

Total possible marks
Maximum full marks

18
18

(b) i

	Gearing	Interest cover	Earnings per share
Current	49.6% (£60/£121)	20.71 (£87/£4.2)	81.8p (£65.412/80)
After:			
Rights issue	25% (£60/£239.797)	27.4 (£115.08/£4.2)	91.2p (£87.595/96)
Debenture issue	83% (£135/£162.132)	10.51 (£115.08/£10.95)	102.8p (£82.263/80)

All in £ million.

The examining team were shocked at the inability of students to calculate some basic ratios. Common errors were: Ignoring the definition of gearing which was given in the question as debt/equity, instead many candidates calculated debt/(debt + equity). Subsequent comparisons with the industry average gearing calculated using debt/equity were, therefore, meaningless. In some cases excluding retentions from the book value of equity; when calculating interest cover dividing interest into profits after tax, sales or even retentions. In some cases inverting the ratio; when calculating EPS using profits after dividends. In some cases dividing the profits after tax by the balance sheet value of the equity and not the number of shares in issue.

Total possible marks
Maximum full marks

4.5
4

(b) ii

Financing the expansion with a rights issue:

The rights issue will result in the issue of a further 16 million ordinary shares which is 20% (16/80) of the existing shares in issue. There will be a dilution of control for those shareholders who do not take up their rights. Shareholders will be encouraged by the increase in earnings per share from 81.77p to 91.2p.

The gearing ratio by book values after the rights issue and expansion of 25% is a significant reduction in the gearing from the present level of 49.6%. Since the industry average gearing is 50% it could be argued that Silverdale would be under geared. However this would leave unused debt capacity of £60 million, which could be used for further expansion. WACC may be higher than necessary as the company may be away from the optimal gearing level. It may be more appropriate to consider market values rather than book values for the gearing calculations.

The increase in the interest cover to 27.4 from 20.71 reduces the financial risk. This also points to unused debt capacity and is substantially above the average for the industry of 20.

Financing the expansion with a debenture issue:

There will be no control issues with a debenture issue. The increase in the earnings per share to 102.8p from 81.77p may encourage the shareholders but might not be reflected in the share price due to the increased financial risk of the company.

The gearing ratio by book values after the debenture issue and expansion of 83% is a significant increase in the gearing from the present level of 49.6% and the industry average gearing of 50%. This may have a detrimental effect on Silverdale's share price and also its ability to find institutions willing to invest in the debentures. The increase in gearing is likely to reduce the company's credit rating, which would result in investors in the debentures requiring a higher yield to maturity. It may therefore be necessary to issue the debentures at a discount, and/or to increase the coupon. Silverdale's WACC may increase.

The decrease in the interest cover 10.51 from 20.71 is a significant decrease from the current level and is substantially below the industry average of 20. This increases the financial risk of the company and is likely to have a detrimental effect on the company's share price and credit rating.

Conclusion

The rights issue results in what might be regarded as an unacceptably low gearing ratio when compared to the industry average. Whereas the debenture issue results in a gearing ratio that likely to be regarded as unacceptably more than the industry average. It would be worth the finance director of Silverdale exploring the possibility of raising the finance from both a debenture issue and a rights issue in such proportions to maintain the company's current gearing ratio.

This would also ensure that the interest cover does not fall to unacceptably low levels

(Note: Capital structure theory, M & M, scores zero)

The evaluation of the two potential methods of financing the expansion was very disappointing. When you have three sets of ratios and also industry averages the team are left a little puzzled as to how students can exclude any numerical analysis in their answers especially since the question had been set to bring out marked differences in the ratios under each financing alternative. Also a number of students took the opportunity to simply brain dump all they know about Modigliani and Miller's theory on capital structure, this did not achieve any marks as it was irrelevant to the question asked.

Total possible marks	13
Maximum full marks	10

(b) iii Before the expansion Silverdale has a current ratio of 1.24:1 (£190m/£153m).

The current ratio after the rights issue and expansion would be 1.81:1 (£278.595m/153.998m) for the rights issue and also 1.81 (£273.263m/£151.331m) for the debenture issue. This is a significant increase from the present level of 1.24:1 and will ensure that the company has sufficient working capital for its expansion plans.

The current ratio is now approaching the industry average.

Hence, if Silverdale wishes to maintain a current ratio near to the industry average it will not be able to finance further expansion beyond 31 May 2017 from cash surpluses at 31 May 2016.

However if a rights issue is used to finance the expansion to 31 May 2016 there will be spare debt capacity that could be used to finance further expansion plans.

Again answers to this part of the question were disappointing, this is simple analysis. The company wishes to maintain a current ratio approaching the industry average and, again, it was surprising that many students did not take the time to calculate the current ratio under each scenario. It was alarming to note how many students thought that retentions equal cash.

Total possible marks	4
Maximum full marks	3



FINANCIAL MANAGEMENT

This paper consists of **THREE** written test questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet.
2. Answer each question in black ball point pen only.
3. Answers to each written test question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must **NOT** be removed from the examination hall.

**DO NOT TURN OVER UNTIL YOU
ARE INSTRUCTED TO BEGIN WORK**

You **MUST** enter your candidate number in this box.

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1. Bradford Bedwyn Medical plc (BBM) is a UK company that manufactures a range of medical equipment for use in hospitals and doctors' surgeries. BBM has a year end of 28 February and it has been trading since 1993.

Extracts from BBM's most recent management accounts are shown below:

Income Statement for the year ended 28 February 2014

	£'000
Profit before interest and taxation	6,816
Debenture interest	(516)
Profit before taxation	6,300
Taxation (21%)	(1,323)
Profit after taxation	4,977
Dividends	(1,493)
Retained profit	3,484

Balance Sheet at 28 February 2014

	£'000
Ordinary share capital (£1 shares)	34,600
Retained earnings	31,384
	65,984
6% Redeemable debentures (redeemable 2019)	8,600
	74,584

BBM's ordinary shares had a market value of £2.45 each (ex-div) and a beta of 0.9 on 28 February 2014. The return on the market is expected to be 8.6% pa and the risk free rate 2.1% pa.

BBM's debentures had a market value of £110 (cum interest) per £100 nominal on 28 February 2014 and they are redeemable at par on 28 February 2019.

BBM's board is now considering diversifying its operations by expanding into a new market. The average equity beta for companies already operating in this market is 1.9 with an average ratio of equity to debt (by market values) of 83:17

This diversification will cost BBM approximately £25 million. However, there is disagreement amongst BBM's directors as to how the diversification should be funded and whether it should happen at all. There are three proposals that are being considered:

Proposal 1

BBM proceeds with the diversification. It would raise the additional funding required from equity and debt sources in such a way as to leave its existing equity: debt ratio (by market values) unchanged following the diversification. The additional debt raised would be in the form of 8% redeemable debentures issued at par.

Proposal 2

BBM proceeds with the diversification. It would raise all of the additional funding required in the form of 8% redeemable debentures issued at par.

Proposal 3

BBM does not proceed with the diversification. The funds, raised as in proposal 2, are used instead to buy back some of its ordinary shares.

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Requirements

- (a) Ignoring the diversification plans, calculate BBM's WACC (weighted average cost of capital) on 28 February 2014, using:
- (i) the Gordon growth model **(10 marks)**
 - (ii) the CAPM **(3 marks)**
- (b) Explain the limitations of the Gordon growth model. **(3 marks)**
- (c) Assuming that Proposal 1 is accepted and using the CAPM, calculate the WACC that BBM should use when appraising its diversification plans and explain your reasoning. **(9 marks)**
- (d) Assuming that Proposal 2 is accepted, discuss the issues that BBM faces when trying to determine an appropriate WACC for appraising its diversification plans. **(5 marks)**
- (e) Assuming that Proposal 3 is accepted, explain why BBM would wish to buy back its shares and the implications for its shareholders. **(5 marks)**
- (35 marks)**

2. Loxwood is a firm of ICAEW Chartered Accountants. You work in its Business Valuations Unit (BVU) which advises clients wishing either (i) to sell their own business or (ii) to purchase a new business. You are currently advising three of Loxwood's clients:

Client One

Walton plc (Walton) is considering making takeover bids for two of its competitors, Hampton plc (Hampton) and Richmond Ltd (Richmond). Loxwood has been asked to advise Walton as to what value it should place on these target companies. You have obtained the following financial data:

	Walton	Hampton	Richmond
Profit before interest and tax (year ended 28 February 2014)	£36.2m	£5.5m	£4.8m
Average annual growth in profit after tax (years ended 28 February 2010-2014)	5%	7.5%	9%
Average dividend pay-out ratio (years ended 28 February 2010-2014)	30%	35%	45%
P/E ratio (at 28 February 2014)	16.5	15.2	Not available
Cost of equity (estimated)	5.0%	9%	10.5%

Balance Sheet extracts at 28 February 2014

	Walton £m	Hampton £m	Richmond £m
Non-current assets (Note 1)	177.0	32.7	22.4
Current assets (Note 1)	146.5	22.8	33.3
Current liabilities	(96.5)	(11.3)	(13.7)
Non-current liabilities (Note 2)	(70.0)	(22.5)	(19.3)
	<u>157.0</u>	<u>21.7</u>	<u>22.7</u>
Ordinary share capital (£1 shares)	62.0	17.6	9.8
Retained earnings	95.0	4.1	12.9
	<u>157.0</u>	<u>21.7</u>	<u>22.7</u>

NOTE 1: These assets have been professionally valued on 28 February 2014 as follows:

	Hampton £m	Richmond £m
Non-current assets	45.2	24.1
Current assets	25.1	35.2

NOTE 2: The non-current liabilities are all debentures, redeemable within the next six years, with coupon rates as follows: Hampton, 7%; Richmond, 8%.

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Client Two

Jackie Wight has run a very successful fashion business, Regent Spark Ltd, for many years and is now considering selling it and taking early retirement. She has read a recent article in the financial press and is concerned that she won't get a fair price for her company. As a result she has contacted Loxwood for guidance. Extracts from the article appear below:

"Angel Ventures (AV) recently bid for biometrics company Praed Bio (PB), offering PB's shareholders £5.20 a share. Maida Money (MM), a hedge fund that owns PB shares, disliked the deal and sought a court's opinion on fair value. MM wanted £10.25 a share. AV countered with £5.10. In court, the judge, using shareholder value analysis (SVA), settled on £5.80 but said there were problems in estimating future cash flows and in calculating the value of the cash flows after the competitive advantage period (the residual value)."

Client Three

Doug Williams owns 60 acres of agricultural land in south west England and is considering accepting an offer from So Lah Energy Ltd (SLE) to install solar panels on his land. SLE would pay Doug £1,000 per acre pa (in 28 February 2014 prices) at the end of each of the next 10 years for the use of his land, after which time it would revert back to agricultural use. To take account of the general rate of inflation, SLE will increase this payment by 3% pa (compound). One of Doug's neighbours, Bill Etheridge, is very unhappy at the prospect of this solar farm and is prepared to buy Doug's land from him for £500,000 in order to stop it being built. The land has a market value of £120,000 in agricultural use on 28 February 2014 and this is expected to rise in line with the general rate of inflation, ie, 3% pa. Doug could invest Bill's money in a bank account bearing interest at 4% pa, but he is unsure whether he should accept his offer.

Requirements

- (a) For Client One, prepare a report for Walton's board advising it of a range of suitable prices for both Hampton and Richmond using asset, dividend and earnings based valuations. Your report should include your workings supported by a clear commentary as to the strengths and weaknesses of each of the valuation methods used. **(20 marks)**
- (b) For Client Two, explain how SVA works and why future cash flows and the residual value are such problems. **(7 marks)**
- (c) For Client Three, ignoring tax, advise Doug Williams as to whether he should accept Bill's offer. You should support your answer with workings and any assumptions that you make should be clearly stated. **(5 marks)**
- (d) Loxwood is planning a new marketing campaign for its BVU. Outline the key ethical issues that Loxwood should consider when planning this campaign. **(3 marks)**

(35 marks)

PLEASE TURN OVER

3. You should assume that the current date is 31 March 2014

You work in the finance team at Padd Shoes Ltd (Padd), a footwear manufacturer and retailer based in the UK. You have been given two tasks to deal with:

Task 1

Padd's chief executive has been contacted by the managing director of a large Indian retailer, DS, who feels that Padd's footwear would sell well in India because, in her words, "Padd's styles are attractive to our consumers, UK brands are generally highly regarded here in India and our country has a growing middle class with enhanced spending power."

It has been agreed that, to test the market, Padd will send a large consignment of footwear to DS for sale in its shops across India. The price for this consignment is 200 million Indian rupees (INR), which will be payable by DS on 30 June 2014.

Padd's board is aware that the Indian rupee has weakened against sterling by almost 2% in the past six months and so it wishes to explore whether to hedge this sale to DS. In addition, because Padd has not traded outside of the UK before, its board has some more general concerns about trading abroad.

You have been asked to prepare advice for the board and have obtained the following information at the close of business on 31 March 2014:

Spot rate (INR/£)	94.0625 - 95.4930
Sterling interest rate (lending)	3.2% pa
Sterling interest rate (borrowing)	4.0% pa
INR interest rate (lending)	4.2% pa
INR interest rate (borrowing)	4.8% pa
Three-month OTC currency call option on INR – exercise price	INR 94.7500/£
Three-month OTC currency put option on INR – exercise price	INR 95.5500/£
Three-month forward rate discount (INR/£)	0.0195 - 0.2265
Cost of relevant OTC currency option	£8,000
Cost of forward contract	£4,500

Task 2

On 1 April 2013 Padd borrowed £8.5 million over a four year period at LIBOR + 1% pa to finance an expansion of its production capacity and the refurbishment of a number of its larger stores. Padd's board is now investigating whether it should hedge against adverse interest rate movements over the next 12 months. Its bank has offered either (i) an option at 4% pa plus a premium of 0.75% of the sum borrowed or (ii) a Forward Rate Agreement (FRA) at 4.5% pa.

Requirements

- (a) Calculate Padd's sterling receipt from the sale to DS if it:
- (i) does not hedge the receipt and the Indian rupee weakens by 1% by 30 June 2014
 - (ii) uses an OTC currency option
 - (iii) uses a forward contract
 - (iv) uses a money market hedge
- (10 marks)**
- (b) With reference to your calculations in part (a) above, advise Padd's board whether it is worth hedging the DS receipt.
- (8 marks)**
- (c) Advise Padd's board as to the risks, other than currency risk, that should be considered if the company is to continue to trade abroad in future.
- (5 marks)**
- (d) By preparing suitable interest payment calculations, recommend to Padd's board whether it is worth hedging against interest rate movements over the next twelve months if LIBOR is either (i) 3% pa or (ii) 6% pa.
- (7 marks)**
- (30 marks)**

WACC				
		Market value		
Equity	34,600 x £2.45	£84,770	7.5% x 84,770/93,714	6.78%
6% debentures	£8,600 x 104/100	£8,944	3.95% x 8944/93,714	0.38%
		<u>£93,714</u>		WACC = 7.16%
In part (a)(i) many candidates did well, as expected, but a disappointing number of them were unable to calculate the dividend growth rate ($g=b \times r$) and a lot of candidates used (erroneously) the cum-interest value of the debentures when calculating the cost of debt, despite there being numerous examples of these calculations in the study materials.				
Total possible marks				10
Maximum full marks				10

1(a)(ii)				
Market risk premium =	(8.6% - 2.1%)		6.50%	
BBM's beta is equity beta so no adjustment required			0.9	
BBM's risk premium =	(6.5% x 0.9)		5.85%	
plus: Risk free rate			2.10%	
Cost of equity via CAPM			<u>7.95%</u>	
WACC				
		Market value		
Equity		£84,770	7.95% x 84,770/93,714	7.19%
6% debentures		£8,944	3.95% x 8944/93,714	0.38%
		<u>£93,714</u>		WACC = 7.57%
In (a)(ii), when calculating WACC using CAPM, many candidates correctly established the cost of equity, but then failed to calculate a WACC subsequently.				
Total possible marks				3
Maximum full marks				3

1(b)	
<p>The Gordon growth model is a simple model of dividend behaviour. In particular: The growth rate (g) must be less than the cost of equity (k_e). Otherwise the share price will be infinitely high. To maintain such a high growth rate to perpetuity is impossible. Companies are likely to experience periods of varying growth rates for which sophisticated models have been developed. In addition the model: Relies on accounting profits Assumes that b and r are constant Can be distorted by inflation Assumes all new finance is from equity or gearing is held constant</p>	
Few candidates knew the limitations of the Gordon model. This was straightforward and a better understanding was expected.	
Total possible marks	3
Maximum full marks	3

1(c)	
Beta of the new market =	1.90
Ungeared beta of the new market =	1.9 x (83/(83 + [17 x 79%])) 1.63
BBM's geared beta for the new market =	1.63 x ((84.770 + (8.944 x 79%))/84.770) 1.77
BBM's cost of equity:	
BBM's risk premium =	(6.5% x 1.77) 11.51%
plus: Risk free rate	2.10%
Cost of equity via CAPM	<u>13.61%</u>
Cost of new debt	(8% x 79%) 6.32%

WACC			
	Market value		
Equity	£84,770	$13.61\% \times 84,770/93,714$	12.31%
6% debentures	£8,944	$6.32\% \times 8,944/93,714$	0.60%
	<u>£93,714</u>	WACC = <u>12.91%</u>	
BBM's current WACC figure (part a above) is 7.16%-7.57%, depending on the method of calculation. It would be unwise to use this figure (approx. 7%) when appraising the diversification.			
This is because the company will be working in a new market and its systematic risk (a key tenet of the CAPM) will change. This new market has a beta of 1.9, whereas BBM currently uses a beta of 0.9.			
Were BBM to underestimate its WACC figure it would overestimate the NPV of the planned diversification. The cost of new debt is higher.			
Many candidates were able to correctly de-gear and re-gear the beta figure as required, but too many used book values when re-gearing (incorrect). Also a vast majority of candidates only did calculations in this part despite the explicit requirement to explain their reasoning.			
Total possible marks			9
Maximum full marks			9

1(d)	
Gearing and systematic business risk have both changed. To get WACC one needs the MV of equity which includes the NPV of project. To get NPV one needs WACC. So it's a circular argument. One could use APV to overcome this.	
BBM cannot use the cost of the new debt after tax as the required return of the shareholders would be ignored. Neither can it use its risk adjusted cost of equity (as this ignores debt finance raised).	
It can't use the risk adjusted WACC figure from part (b) because BBM's gearing level will have changed (it's an all-debt issue) – the WACC to be used then depends on the reaction to the increased gearing (U-shaped under traditional and M&M 63 with market imperfections). If however there was a subsequent issue of equity planned which would re-establish the current gearing level, then the risk adjusted WACC from (b) could be used.	
This has been asked regularly in the past, i.e. the issues in determining a WACC, but it was, overall, done poorly.	
Total possible marks	5
Maximum full marks	5

1(e)	
Normally a share buy-back returns money to shareholders and enables a company to use surplus cash when there are no investment opportunities with a positive NPV available. It doesn't appear to be the case here as the company is issuing debt.	
If BBM made a large dividend payment then this would be contra to company dividend policy. It might have an adverse effect on the company's share price - uncertainty created if larger dividend is not maintained in future.	
A buy-back would reduce the number of shares in the market and this will mean that BBM's earnings per share and market value per share may increase depending on the reaction to the change in gearing – see below.	
A buy-back could change control e.g. remove the influence of an unwelcome shareholder by buying their shares	
A share buy-back would increase BBM's gearing, which might, if BBM is below its optimal level of gearing, lead to an increase in BBM's share price via a reduced WACC.	
A buy-back gives a capital gain subject to CGT rather than a dividend subject to income tax.	
In this part too few candidates recognised that the share buy-back financed by a debt issue would increase gearing. Many candidates argued that gearing would decrease and, disappointingly, many confused the buy-back with a rights issue.	
Total possible marks	5
Maximum full marks	5

QUESTION 2**Total marks: 35****General comments**

This question had the lowest average mark on the paper and, in general, was done very badly indeed.

It was a four-part question that tested the candidates' understanding of the investment decisions and valuation element of the syllabus.

In the scenario a firm of ICAEW Chartered Accountants is advising three clients in its Business Valuations Unit (BVU):

Client One is considering a takeover bid for two of its competitors. Candidates were given financial data about the client and its target companies. Using this data they were asked to calculate a range of suitable prices for the targets and a commentary on the strengths and weaknesses of each of the valuation methods used.

Client Two had read a newspaper article which outlined a court case in which a company had been valued using Shareholder Value Analysis (SVA). Candidates were required to explain how SVA works and the problems that can arise from its employment.

Client Three was a landowner who, in effect, needed to calculate the present value of 60 acres of his agricultural land for which he had been offered ten years of rental income. Candidates were given annual discount and inflation rates.

Finally, in part (d), candidates were asked to outline the ethical issues that the firm should consider when planning a marketing campaign for its BVU.

2(a)

	Hampton	Richmond
<u>Total asset value (historic)</u>	£21.7m	£22.7m
Value per share (£21.7m/17.6m)	£1.23	(£22.7m/9.8m) £2.32
<u>Total revalued assets</u>		
[21.7+45.2+25.1–32.7–22.8]		[22.7+24.1+35.2–22.4–33.3]
	£36.5m	£26.3m
Value per share (£36.5m/17.6m)	£2.07	(£26.3m/9.8m) £2.68
<u>Dividend valuation</u>		
Dividends (W1) $\frac{d_1}{k_e - g}$ $\frac{£1.085m \times 1.075}{(9\% - 7.5\%)}$	£77.758m	$\frac{£1.157m \times 1.09}{(10.5\% - 9\%)}$ £84.075m
Value per share $\frac{£77.758m}{17.6m}$	£4.41	£84.075m/9.8m £8.58
<u>Earnings valuation (Earnings x P/E)</u>		
£3.101m x 15.2	£47.135m	£2.572m x 15.2 (Hampton) £39.094m
Value per share $\frac{£47.135m}{17.6m}$	£2.68	£39.094m/9.8m £3.99

Commentary

Asset values – historic so not equal to MV and only considers tangible assets and ignores income. Revalued figures are better as more up to date, but still have the same disadvantages.

The P/E ratio is a better guide for Hampton as it will give the company's actual market value at 28 February 2014 but based only on a small number of shares changing hands at any one time - a premium would normally be paid above MV to get control. Also, have there been significant changes since 28 February which would affect the value?

It is a takeover bid and so, presumably, Walton will be looking forwards and intending to generate future earnings from Hampton, not liquidate (asset strip) it as in asset values. For Richmond (a private company) it would be reasonable to use Hampton's P/E ratio (same market), but it will be necessary to discount (by 25% to 50%) this valuation because Richmond's shares will be less marketable. For both companies, are the current year's earnings reasonable i.e. not distorted in any way? Synergy is also ignored in the calculations.

The dividend growth model (DGM) gives the highest valuations for both companies, but the cost of equity and dividend growth rate will need to be treated with caution as they are very close to each other giving high values. This puts the valuation in some doubt. Particularly one should bear in mind that the market has priced Hampton at a much lower figure (via P/E) than the value given by the DGM. Similar comments re synergy apply.

Working 1

	£m		£m
Profit before interest and tax	5.500		4.800
less: Interest (€22.5m x 7%)	(1.575)	(£19.3m x 8%)	(1.544)
Profit before tax	3,925		3,256
less: Tax at 21%	(0.824)		(0.684)
Profit after tax/Earnings	3.101		2.572
less: Dividends (35% x £3.101m)	(1.085)	(45% x £2.572m)	(1.157)
Retained	<u>2.016</u>		<u>1.415</u>

Here many candidates' calculations of value were very poor or non-existent. For example they were unable to identify the net assets figure straight from the financial data made available with many just using assets rather than assets less liabilities. Also they couldn't change that number (for asset revaluation) with the two adjustments that were given in the data. Many used the profit before interest figure as earnings (and therefore the basis for the dividend figure). Interest and tax details were provided for calculating profit after interest and tax.

Total possible marks	20
Maximum full marks	20

2(b)

Shareholder value analysis (SVA) concentrates on a company's ability to generate value and thereby increase shareholder wealth. SVA is based on the premise that the value of a business is equal to the sum of the present values of all of its activities.

The value of the business is calculated from the cash flows generated by drivers 1-6 which are then discounted at the company's cost of capital (driver 7). SVA links a business' value to its strategy (via the value drivers).

The seven value drivers are a key element of the SVA approach to valuing a company.

1. Life of projected cash flows
2. Sales growth rate
3. Operating profit margin
4. Corporate tax rate
5. Investment in non-current assets
6. Investment in working capital
7. Cost of capital

Company projections tend to show cash flows growing steadily upwards into an indefinite future. In the real world, economies fall, competition increases and margins decline.

The majority of a DCF value estimate comes from the "residual value", the worth of the company at the end of the projection period. That, naturally, depends heavily on the cash flows estimate in the final year modelled – a result, logically, of the trend in the early years.

In part (b) there was a poor understanding of the SVA method of valuation, in particular the issues associated with future cash flows and residual value.

Total possible marks	7
Maximum full marks	7

2(c)	
<p>£60k inflating at 3% pa discounted at 4% pa is the same as £60k discounted at an effective 1% pa so:</p> <p>$[\text{£}60,000 \times 9.471] + [\text{£}120,000 \times 0.905]$ (assuming land sold at year 10) = £ 676,860 (Present Value) vs. £500,000 offered, so don't sell the land.</p> <p>£120,000 ignored as common to both alternatives</p>	
<p>This part was probably the worst overall performance in the paper. Very few candidates demonstrated an understanding of basic discounting. Many discounted the cash flows using the annual inflation rate rather than cost of capital. In addition many compared terminal values and present values to get to their decision.</p>	
Total possible marks	5
Maximum full marks	5

2(d)	
<p>When marketing themselves and their work, professional accountants should:</p> <ul style="list-style-type: none"> • Be honest and truthful • Avoid making exaggerated claims about (i) what they can do (ii) their qualifications and experience • Avoid making disparaging references to the work of others • Not use confidential information from other clients in campaign 	
<p>Many candidates answered this by dealing with ethics in the context of valuing companies, rather than in the context of the promotional campaign. In other words they didn't answer the question.</p>	
Total possible marks	5
Maximum full marks	3

QUESTION 3**Total marks: 30****General comments**

The average mark for this question was the highest in the paper, equated to a clear pass and so, overall, was done well.

This was a four-part question that tested the financial risk element of the syllabus.

The scenario was based on a UK footwear manufacturer/exporter and included relevant exchange rates and interest rates. The question tested (i) candidates' understanding of foreign exchange risk management, (ii) the more general risks associated with trading overseas and (iii) how to hedge against interest rate movements.

Part (a) required candidates to calculate (i) the impact of a strengthening of sterling on a proposed export contract and (ii) the outcome of three possible hedging strategies for that contract. Part (b) candidates had to advise the company's board as to which hedging technique was preferable (if any), based on their calculations in part (a). Part (c) asked candidates to advise the company of the risks (non-currency) to consider when trading abroad. Finally, in part (d) candidates had to recommend whether or not the company, which has borrowed a large amount, should hedge against the impact of interest rate movements on that loan.

3(a)			
Sterling receipt at spot rate =	<u>INR 200,000,000</u> 95.4930		£2,094,394
<u>Sterling receipt</u> <u>if rupee weakens by 1%</u>	<u>INR 200,000,000</u> (95.4930 x 1.01)	<u>INR 200,000,000</u> 96.4479	£2,073,658
<u>Option</u> (@ exercise price)	<u>INR 200,000,000</u> 95.5500	£2,093,145	
<u>less: Cost</u>		<u>(£8,000)</u>	£2,085,145
<u>Forward contract</u>	<u>INR 200,000,000</u> (95.4930 + 0.2265)	<u>INR 200,000,000</u> 95.7195	£2,089,438
<u>less : Cost</u>		<u>(£4,500)</u>	£2,084,938
<u>Money Market Hedge</u>			
Borrow in rupees	<u>INR 200,000,000</u> 1.012	INR 197,628,450	
Convert @ spot rate	<u>INR 197,628,450</u> 95.4930	£2,069,560	
Lend in sterling		£2,069,560 x 1.008	2,086,116
This was very similar to past exam questions but despite this many candidates did not get all of the calculation marks available. Typical errors were (i) using a call option rather than a put and (ii) ignoring contract costs.			
Total possible marks			10
Maximum full marks			10

3(b)	
<p>Padd's directors' attitude to risk is important.</p> <p>The interest rates and the forward rate discount suggest that the rupee will weaken. A weaker rupee will produce less sterling on conversion, so hedging may be worthwhile.</p> <p>The worst case scenario from (a) is if the rupee weakens by 1% over the next three months.</p> <p>The MMH (which would give a fixed sterling amount) gives the highest sterling figure, followed closely by the OTC option, with which there is some flexibility for the directors.</p> <p>The forward contract (which would also give a fixed sterling amount) produces a comparatively poor sterling remittance. It has a high arrangement fee.</p> <p>Were sterling to remain at spot rate then this would give the best outcome and a strengthening of the rupee would enhance the sterling receipt even more.</p>	
The discussion in (b) was, in many cases, brief and very basic for 8 marks.	
Total possible marks	8
Maximum full marks	8

3(c)	
<p>Government stability</p> <p>Political and business ethics</p> <p>Economic stability</p> <p>Import restrictions</p> <p>Remittance restrictions</p> <p>Special taxes, regulations for foreign companies</p> <p>Trading risks – physical risk, credit risk, liquidity risk etc.</p>	
Part (c) was, as expected, answered well.	
Total possible marks	7
Maximum full marks	5

3(d)		
LIBOR + 1	4%	7%
Option		
Exercise?	Indifferent	Yes
Rate	(4%)	(4%)
Premium	(0.75%)	(0.75%)
	(4.75%)	(4.75%)
Annual interest payment (on £8.5m)	(£403,750)	(£403,750)
FRA		
Pay at LIBOR +1	(4%)	(7%)
(Payment to)/receipt from bank	(0.5%)	2.5%
	(4.5%)	(4.5%)
Annual interest payment (on £8.5m)	(£382,500)	(£382,500)
No hedge		
Pay at LIBOR + 1	(4%)	(7%)
Annual interest payment (on £8.5m)	(£340,000)	(£595,000)
<p>If LIBOR is 3% then it's better not to hedge and at 6% the FRA seems to be the cheapest option.</p> <p>It also depends on the board's attitude to risk.</p> <p>The FRA eliminates down side risk (rates rising) as well as upside risk (rates falling).</p>		
This part caused many students difficulty. Too few of them produced sufficient workings to enable them to produce suitable recommendations		
Total possible marks		7
Maximum full marks		7



FINANCIAL MANAGEMENT

This paper consists of **THREE** questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet. You will be given time to sign, date and print your name on the answer booklet, and to enter your candidate number on this question paper. You may not write anything else until the exam starts.
2. Answer each question in black ballpoint pen only.
3. Answers to each question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.
5. When the assessment is declared closed, you must stop writing immediately. If you continue to write (even completing your candidate details on a continuation booklet), it will be classed as misconduct.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must **NOT** be removed from the examination hall.

**DO NOT TURN OVER UNTIL YOU
ARE INSTRUCTED TO BEGIN WORK**

You **MUST** enter your candidate number in this box.

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1. Premier Transport Group plc (Premier) is a UK transport operator that has two divisions – (a) bus services and (b) express coach services. It has a financial year end of 30 April. Premier's board is investigating capital investment proposals for each of its divisions.

1(a) Bus division

The bus division is bidding for a three-year contract to operate a number of bus routes in a large tourist resort in the south of England. This contract covers the period from 1 May 2015 to 30 April 2018. Your colleagues in Premier's finance team have produced estimates of the incremental income and expenses (in 30 April 2015 prices) for the period of the contract as shown below:

Years to 30 April	2016 £	2017 £	2018 £
Fares	918,400	2,250,000	3,450,000
Fuel costs	(432,000)	(446,400)	(489,600)
Other costs (see note)	(755,000)	(840,000)	(905,000)
Profit/(Loss) before taxation	<u>(268,600)</u>	<u>963,600</u>	<u>2,055,400</u>

Note

Premier is considering hiring eight extra buses to operate on this new contract. The annual hire cost per bus is £45,000 (which is allowable for tax) and this has been included in the 'other costs' figure above.

Bus purchase

As an alternative to the plan to hire the eight new buses, Premier's directors are considering whether it would be preferable to purchase them instead. These would cost £200,000 each on 30 April 2015 and would have a market value of £50,000 each (in 30 April 2018 prices) at the end of the contract. It is company policy to write off buses using the straight-line depreciation method.

The buses will attract 18% (reducing balance) capital allowances in the year of expenditure and in every subsequent year of ownership by the company, except the final year. In the final year, the difference between the buses' written down value for tax purposes and their disposal proceeds will be treated by the company either:

- as a balancing allowance, if the disposal proceeds are less than the tax written down value, or
- as a balancing charge, if the disposal proceeds are more than the tax written down value.

Inflation

Premier's directors estimate that all costs (except for hiring and depreciation) will increase by 3% pa, but they will cap fare increases at 2% pa.

Corporation tax

Assume that the rate of corporation tax will be 21% pa for the foreseeable future and that tax flows arise in the same year as the cash flows which gave rise to them.

Cost of capital

Premier uses a money cost of capital of 10% pa for investment appraisal purposes.

Cash flows

Assume that, unless otherwise instructed, all cash flows occur at the end of a financial year.

Requirements

- (i) Using money cash flows, calculate the net present values on 30 April 2015 of the two proposals – bus hiring or bus purchase – and advise Premier's board which of the two proposals it should accept. (16 marks)
- (ii) Calculate how sensitive your decision in (i) above is to the market value of the buses on 30 April 2018. (4 marks)
- (iii) Estimate the internal rate of return of the bus purchase proposal and explain the advantages and disadvantages of this method of investment appraisal. (5 marks)

1(b) Express coach division

Premier's fleet of medium-sized express coaches operates on long distance routes across the UK. Its board wishes to establish the most cost effective method of replacing its coaches. Your colleagues in Premier's finance team have produced the following estimates of capital and running costs:

Coach type	Deluxe	Mid-Range	Economy
Purchase price	£260,000	£210,000	£160,000
Annual running costs (in money cash flows)	£57,000	£54,000	£70,000
Estimated life (in years)	6	4	3

The expected life of the Economy coach could be doubled to six years, but this would mean that the coach would require £90,000 of refurbishment costs at the end of the third year and that its annual running costs for years 4 to 6 would be £85,000.

It can be assumed that all costs are paid at the end of the year to which they relate, with the exception of the initial purchase price which is paid at the time of purchase. Premier's directors would like to assume that the market value of each type of coach at the end of its life will be nil.

Requirement

Advise Premier's board (showing supporting workings) as to which coach type should be purchased, assuming that Premier wishes to minimise the present value of its costs.

(10 marks)

Note: Ignore inflation and taxation when answering part (b).

Total: 35 marks

2. You should assume that the current date is 31 March 2015

You work in the finance team at Perryfield Paper plc (PP) a listed UK paper manufacturer which has a financial year end of 31 March.

PP currently has a very healthy level of liquid funds (approximately £8.5m) in its bank accounts. At the company's most recent board meeting the following issues were discussed:

- should the firm's current weighted average cost of capital (WACC) figure of 6.5% be amended? This figure has been used for many years and the directors are concerned that this rate does not represent current market conditions.
- should the dividend growth model or the capital asset pricing (CAPM) model be used to calculate the WACC?
- should PP's long-term funding be restructured?

Cost of capital

The figures below have been given to you for the year ended/at 31 March 2015:

Type of capital (nominal value)	Total dividends/interest	Total market value	Total nominal value
Ordinary shares (25p)	£4,976,400	£63,800,000	£14,500,000
Preference shares (50p)	£313,200	£6,400,000	£2,000,000
Irredeemable debentures (£100)	£405,000	£14,175,000	£13,500,000

Note 1: All dividends have been paid for the year ended 31 March 2015. Ordinary dividends have been growing at a steady rate of 2% pa for the past five years.

Note 2: All debenture interest payable for the year to 31 March 2015 has been paid.

Restructuring the long-term funding

Two mutually-exclusive proposals have been made to restructure PP's capital:

- (1) Purchase and cancel all of PP's irredeemable debentures at their current market value. Issue 4% coupon debentures with a nominal value of £9 million, redeemable in four years' time at par.
- (2) Buy back 10% of PP's ordinary shares.

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Requirements

- (a) Using the dividend growth model, calculate PP's current WACC on 31 March 2015. **(8 marks)**
- (b) Giving reasons, advise PP's directors whether they should use the WACC figure from part (a) when appraising potential investments rather than the current figure of 6.5%. **(4 marks)**
- (c) Discuss the logic underpinning the CAPM and explain how the CAPM can be used to calculate the WACC. **(7 marks)**
- (d) For proposal (1), if, at their issue date, the market gross redemption yield for similar redeemable debentures is 5% pa, calculate the issue price of the new redeemable debentures and the total funds raised. **(4 marks)**
- (e) For proposal (2), explain how a share buy-back works and the implications of a buy-back for PP's individual shareholders, ignoring any impact on PP's gearing. **(5 marks)**
- (f) Making reference to relevant theories, discuss how the share buy-back would affect PP's gearing and its WACC. **(7 marks)**

Total: 35 marks

3. **You should assume for all parts of this question that the current date is 1 April 2015**

Chamberlain Jeffries plc (CJ) is a UK-listed international logistics company which started trading in 1982. Its financial year end is 31 March. You are an ICAEW Chartered Accountant who works in CJ's corporate treasury team. At a recent meeting with your manager it was agreed that you will be involved with three tasks: (1) hedging the interest on a planned loan, (2) hedging CJ's share portfolio investment using options and (3) hedging CJ's share portfolio investment using futures.

3(a) Task 1

You have been asked by your line manager to evaluate whether or not CJ should use interest rate futures to hedge against interest rate movements on a loan. CJ's board is planning to borrow £11.5 million for a nine month period from 1 June 2015 to 28 February 2016 and is worried that interest rates will increase from their current level of 8% pa. The current price of June sterling 3-months futures is 91.50 and the standard contract size is £500,000.

Requirement

Demonstrate how sterling interest rate futures can be used by CJ to hedge against interest rate movements, commenting on your results, if by 1 June 2015:

- (i) interest rates decrease to 6.5% pa and the futures price alters by 1.75%
- (ii) interest rates increase to 9% pa and the futures price alters by 1%
- (iii) interest rates increase to 10% pa and the futures price alters by 2.25%

(10 marks)

3(b) Task 2

CJ has invested in a portfolio of UK FTSE100 shares which is worth £18.225 million on 1 April 2015. The spot value of the FTSE100 index on that date is 6,750.

CJ's board wishes to explore the implications of hedging the company against a potential fall in share prices in the next month. Accordingly, it is considering the use of (i) traded FTSE100 index options or (ii) FTSE100 stock index futures.

Index options

The following information has been gathered:

FTSE 100 INDEX OPTION (£10 per full index point)

Exercise price	6,650		6,700		6,750		6,800		6,850	
	Call	Put	Call	Put	Call	Put	Call	Put	Call	Put
May	215	95	184	115	154	135	125	159	105	191
June	272	131	241	152	217	176	186	197	162	221

Assume that the board decides to use options to protect the current value of the portfolio in one month's time.

Requirement

Explain, with supporting workings, what will happen in one month's time if:

- the portfolio's value falls to £17.955 million and the FTSE100 index falls to 6,650
 - the portfolio's value rises to £18.360 million and the FTSE100 index rises to 6,800
- (8 marks)

3(c) Task 3

Index futures

As an alternative to hedging the £18.225 million portfolio with options, CJ's board is considering using FTSE100 stock index futures. At 1 April 2015 the quote for FTSE100 stock index futures in one month is 6,720 and the face value of a FTSE100 index contract is £10 per index point.

Requirement

Calculate the outcome of this hedge if in one month's time the portfolio's value falls to £17.955 million and the FTSE100 stock index futures contract falls to 6,630. Comment on whether this hedge has been effective and identify the reasons for any inefficiency which may arise when using futures contracts.

(8 marks)

3(d)

Since September 2014 CJ's board has held several meetings with the board of another large UK-listed logistics company, Osman Lloyd plc. They have been discussing the potential merger of the two firms. Whilst news of this merger is known only to a few people at both firms, one of your friends in CJ's corporate treasury team has recently provided financial advice to the board.

Your friend is convinced that CJ's share price will rise considerably once the news becomes public knowledge. He has told you: "I know that you can't buy shares, but tell your friends about the merger. They will make a nice profit and so could you, if you're careful."

Requirement

What are the ethical issues for you as regards this information?

(4 marks)

Total: 30 marks

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. In many cases, more marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

General point about candidates' handwriting

As in previous papers, there were a number of instances in the scripts where the markers found it extremely difficult to read the candidates' handwriting. If a marker is unable to read what has been written then no marks can be awarded for the passage in question.

QUESTION 1

Total marks: 35

General comments

This question had the highest average mark on the paper. Candidate performance was very good.

This was a four-part question that tested the candidates' understanding of the investment decisions element of the syllabus.

In the first part of the scenario (16 marks) a UK transport company had to choose (using the NPV approach) whether to hire or purchase extra buses to operate on new bus routes. Candidates, as an employee of the company, had to advise its board. They were given estimated incremental income and cost flows and had to take account of inflation rates and corporation tax implications. Secondly, for four marks, they were required to calculate the sensitivity of that decision to the trade-in value of new buses. For a further five marks they were asked to estimate the IRR of the bus purchase proposal and to explain the advantages and disadvantages of the IRR method of investment appraisal. Finally, for ten marks, candidates were tested on their understanding of replacement analysis. Here the company had to choose between three types of coach and candidates were required to advise the board as to which was the most cost effective method of replacing its coaches.

1(a)(i)

Bus Hiring

	Year to 30/4/15 £	Year to 30/4/16 £	Year to 30/4/17 £	Year to 30/4/18 £
Fares(W1)		936,768	2,340,900	3,661,168
Fuel Costs(W2)		(444,960)	(473,586)	(534,999)
Other Costs (W3)		(766,850)	(869,232)	(955,536)
Taxation (W4)		57,759	(209,597)	(455,833)
Net Cash flow after taxation	0	(217,283)	788,485	1,714,800
10% factor	1.000	0.909	0.826	0.751
PV	0	(197,510)	651,289	1,287,814
NPV	1,741,593			

Bus Purchase

	Year to 30/4/15	Year to 30/4/16	Year to 30/4/17	Year to 30/4/18
Bus(purchase)/Sale	(1,600,000)			400,000
Tax relief on buses (W5)	60,480	49,594	40,667	101,260
Fares		936,768	2,340,900	3,661,168
Fuel Costs		(444,960)	(473,586)	(534,999)
Other Costs (W3)		(406,850)	(509,232)	(595,536)
Taxation (W6)		(17,841)	(285,197)	(531,433)
Net cash flow after taxation	(1,539,520)	116,711	1,113,552	2,500,460
10% factor	1.000	0.909	0.826	0.751
PV	(1,539,520)	106,090	919,794	1,877,845
NPV	1,364,209			

Ignore depreciation as it is not a cash flow.

The bus hiring scheme produces the higher NPV and so should be chosen as this will enhance shareholder wealth more.

Workings

W1

	Year to 30/4/15 £	Year to 30/4/16 £	Year to 30/4/17 £	Year to 30/4/18 £
Fares (April 2015 prices)			2,250,000	3,450,000
Inflate at 2% pa		x 1.02	x (1.02) ²	x (1.02) ³
"Money" fares		936,768	2,340,900	3,661,168

W2

Fuel costs (April 2015 prices)	432,000	446,400	489,600
Inflate at 3% pa	x 1.03	x (1.03) ²	x (1.03) ³
"Money" fuel costs	444,960	473,586	534,999

W3

Other costs (April 2015 prices)	755,000	840,000	905,000
less: Hire costs (8 x £45,000)	(360,000)	(360,000)	(360,000)
	395,000	480,000	545,000
Inflate at 3% pa	x 1.03	x (1.03) ²	x (1.03) ³
"Money" Other costs	406,850	509,232	595,536
plus: Hire costs	360,000	360,000	360,000
Total other costs	766,850	869,232	955,536

W4

"Money" fares (W1)	936,768	2,340,900	3,661,168
"Money" fuel costs (W2)	(444,960)	(473,586)	(534,999)
Total other costs (W3)	(766,850)	(869,232)	(955,536)
Taxable profit/(loss)	(275,042)	998,082	2,170,633

Tax (payable)/due @ 21%	57,759	(209,597)	(455,833)
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W5

Bus purchase/WDV	1,600,000	1,312,000	1,075,840	882,189
WDA @ 18%/Bal. All'ce	(288,000)	(236,160)	(193,651)	482,189
WDV/sale	1,312,000	1,075,840	882,189	400,000

Tax (21% x WDV/BA)	60,480	49,594	40,667	101,260
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W6

"Money" fares (W1)	936,768	2,340,900	3,661,168
"Money" fuel costs (W2)	(444,960)	(473,586)	(534,999)
"Money" other costs (W3)	(406,850)	(509,232)	(595,536)
Taxable profit/(loss)	84,958	1,358,082	2,530,633

Tax payable @ 21%	(17,841)	(285,197)	(531,433)
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This was well answered by most candidates and they showed a good understanding of relevant cash flows and the impact of inflation and taxation. The most common mistakes made by candidates here were (i) not multiplying the hire cost by eight [years] and (ii) not inflating the cash flows correctly (i.e. not compounding the inflation adjustment).

Total possible marks	16
Maximum full marks	16

1(a)(ii)	
Change required in NPV (£1,741,593 - £1,364,209)	£377,384
Adjustment required for tax relief on capital allowances (£377,384/79%)	£477,701
Adjustment required for time value of money (£477,701/0.751)	£636,087
Total sale price of buses would need to be £636,087 higher, i.e.	£79,511 each
Sale price per bus would need to be (£50,000 + £79,511)	£129,511
Overall, part (a)(ii) was poorly done. Most candidates used NPV/PV cash flows, which doesn't work when there's a balancing allowance involved, which was the case here.	
Total possible marks	4
Maximum full marks	4

1(a)(iii)	
IRR of bus purchase scheme	
NPV @10%	£1,364,209
Rework cash flows at 20%:	
	£
Net cash flow after tax	(1,539,520)
20% factor	1.000
PV	(1,539,520)
NPV	£778,271
IRR approximation	20% + ((£778,271/(£1,364,209 - £778,271)) x 10%) 33%
IRR takes into account cash flows and the time value of money. It represents a break-even point, so an exact cost of capital is not needed. It's easier to use and communicate practically.	
However, it may give conflicting advice to that given by NPV (which is technically superior)	
Candidates' performance here was very variable. A positive NPV at 10% means that the discount rate should go up not down for the next NPV calculation. Weaker scripts demonstrated a poor use of the IRR extrapolation formula and very poor understanding of the advantages/disadvantages of the IRR approach.	
Total possible marks	5
Maximum full marks	5

1(b)			
<u>Deluxe</u>		£	£
	Initial cost (Year 0)		(260,000)
	Annual running costs	(57,000)	
		x	
	Year 6 annuity factor (@ 10%)	<u>4.355</u>	
			(248,235)
			<u>(508,235)</u>
Equivalent annual running cost	(£508,235)/4.355		(116,701)
<u>Mid-Range</u>	Initial cost (Year 0)		(210,000)
	Annual running costs	(54,000)	
		x	
	Year 4 annuity factor (@ 10%)	<u>3.170</u>	
			(171,180)
			<u>(381,180)</u>
Equivalent annual running cost	(£381,180)/3.170		(120,246)
<u>Economy Three year cycle</u>	Initial cost (Year 0)		(160,000)
	Annual running costs	(70,000)	
		x	
	Year 3 annuity factor (@ 10%)	<u>2.487</u>	
			(174,090)
			<u>(334,090)</u>
Equivalent annual running cost	(£334,090,180)/2.487		(134,334)
<u>Economy Six year cycle</u>	Initial cost (Year 0)		(160,000)
	Annual running costs (Y1-Y3)	(70,000)	
		x	
	Year 3 annuity factor (@ 10%)	<u>2.487</u>	
			(174,090)
			<u>(334,090)</u>
	plus: Repair costs at Year 3 (£90,000 x 0.751)		(67,590)
	plus: Running costs (Y4-Y6) (£85,000 x 2.487 x 0.751)		(158,758)
			<u>(560,438)</u>
	Equivalent annual running cost	(£560,438)/4.355	(128,688)
Thus the cheapest replacement cycle is for the Deluxe coach and, ignoring any other factors, this coach type should be purchased.			
Candidates' answers to part (b) were also very variable. Many scored full marks, but many failed to discount the cash flows and/or divide by the annuity factor. A lot of candidates couldn't calculate the NPV of the extended life (Economy coach) correctly. A significant minority of candidates wasted time by calculating annuity factors that were already there for them in the tables supplied.			
Total possible marks			10
Maximum full marks			10

QUESTION 2**Total marks: 35****General comments**

This question had easily the lowest percentage mark on the paper, which was disappointing as some basic finance concepts were examined here

It was a six-part question that tested the candidates' understanding of the financing options element of the syllabus.

It was based around a paper manufacturing company which needed to make a range of financing calculations and decisions. Part (a) of the question (for eight marks) required candidates to calculate the company's current WACC figure. In part (b) they were then asked to explain whether this figure should be used rather than the company's current WACC. Part (c) was worth seven marks and here candidates had to discuss the logic underpinning the CAPM and explain how it can be used to calculate the WACC. For part (d) candidates were required to calculate the market price of redeemable debentures, having been given the required yield figure. This was worth four marks. The last two parts of the question dealt with share buy-backs. In the scenario the company was considering a buy-back and in part (e), for five marks, candidates were asked to explain how it works and its implications for shareholders. Finally, for seven marks, part (f) required candidates to discuss how the buy-back would affect the company's gearing and its WACC.

2(a)					
Cost of equity (k_e)	$\frac{£4,976,400 \times 1.02}{£63,800,000}$	+ 2%			9.96%
Cost of preference shares (k_p)	$\frac{£313,400}{£5,400,000}$				5.80%
Cost of irredeemable debentures (k_d)	$\frac{£405,000 \times 79\%}{£14,175,000}$				2.26%
<u>WACC</u>	<u>Market Value (£'000)</u>	<u>Cost</u>			<u>WACC</u>
k_e	63,800	9.96%	x	63,800/83,375	7.62%
k_p	5,400	5.80%	x	5,400/83,375	0.38%
k_d	14,175	2.26%	x	14,175/83,375	0.38%
Total	<u>83,375</u>				<u>8.38%</u>
So, based on the figures given, PP's WACC figure is approximately 8.4%					
Most candidates scored well here, but in the weaker scripts candidates divided by cost not market value when calculating the cost of preference shares and debentures.					
Total possible marks					8
Maximum full marks					8

2(b)	
PP's WACC (8.4%) is higher than the 6.5% figure currently used and this should be used as a hurdle rate in investment appraisal. Otherwise PP could be taking on projects that have an IRR of more than 6.5%, but less than 8.4%. To do so would mean that PP's shareholders' wealth would decline as these projects would produce negative NPV's.	
Candidates scored well if they explained the implications of using the wrong discount rate (WACC) for project NPV's (and shareholder wealth). A minority of candidates failed to do this adequately.	
Total possible marks	4
Maximum full marks	4

2(c)	
<p>The Capital Asset Pricing Model (CAPM) is an alternative method of calculating the cost of equity. As such it can be used within the WACC calculation.</p> <p>The CAPM assumes that investors are diversified, i.e. they have diversified specific risk away. Thus it takes account of systematic risk only and measures the systematic risk of investments. This risk is measured as an index (beta). The beta index of a security is applied to the risk premium of the market portfolio (equity shares). The risk premium is the rate of return from the market portfolio less rate of return from risk-free securities. Thus, with the CAPM, a higher beta (systematic risk) index will mean a higher cost of equity.</p>	
<p>Overall this part was poorly answered. Too many candidates just explained how the CAPM equation works or just wrote out what was on the formulae sheet without working through the underpinning logic. Also a disappointing number of candidates answered the wrong question, i.e. they explained how to de-gear/re-gear using a similar quoted company, beta and new project</p>	
Total possible marks	7
Maximum full marks	7

2(d)	
Selling price of redeemable debentures	
Year	Cash flow (£)
1-4	Interest 4.00
4	Redemption 100.00
	PV of future cash flows at a yield of 5% pa
	5% factor 3.546
	0.823
	PV (£)
	14.18
	82.30
	96.48
Total funds raised = £9m x 96.48%	
£8.68m	
In effect, this required candidates to work backwards through a cost of debt calculation. A good number were able to do it, but, sadly, far too many were not.	
Total possible marks	4
Maximum full marks	4

2(e)	
<p><u>Share buy-back and implications</u></p> <p>A company buys back its equity from shareholders. It is often used when there is no other use for surplus cash funds available, e.g. (i) no investments available that have positive NPV's or (ii) no wish to alter company's dividend policy (via a special dividend).</p> <p><u>Control implications</u> – control is maintained if the buy-back is in proportion to existing shareholdings. However a buy-back can be used to remove an awkward shareholder.</p> <p><u>Tax implications</u> – income tax would be due on dividends (e.g. special dividend) whereas CGT would be due on a buy-back.</p>	
Parts (e) and (f) were generally well done and most candidates were able to demonstrate an understanding of the workings and implications of a share buy-back.	
Total possible marks	5
Maximum full marks	5

2(f)	
<p><u>WACC and gearing</u></p> <p>A buy-back reduces equity and so PP's gearing ratio would increase.</p> <p><u>The effect of the buy-back on PP's WACC:</u></p> <p>Consider the theories - traditional view, M&M 1958 and 1963</p> <p>Consider the modern view – optimum gearing level (maximisation of company value) is a balance between the benefits of the tax shield and bankruptcy costs. The impact on PP's WACC (and value) depends on where its optimum gearing level is.</p>	
Parts (e) and (f) were generally well done and most candidates were able to demonstrate an understanding of the workings and implications of a share buy-back.	
Total possible marks	7
Maximum full marks	7

QUESTION 3**Total marks: 30****General comments**

The average mark for this question was very good and most candidates demonstrated a good understanding of this area of the syllabus.

This was a four-part question which tested the candidates' understanding of the risk management element of the syllabus and there was also a small section with an ethics element to it.

In the scenario a logistics company was investigating how it might (i) hedge interest payments on a proposed loan and (ii) hedge against a fall in the value of its share portfolio. In part (a), for ten marks, candidates had to demonstrate how interest rate futures could be used to hedge against interest rate movements. Part (b) required candidates to prepare calculations to demonstrate how traded FTSE100 options could be employed to hedge against adverse movements in share prices. This was worth eight marks. Part (c), also for eight marks, was similar to part (b), but here the hedging instrument was FTSE100 stock index futures. Finally, for four marks, candidates had to explain the ethical issues arising for an ICAEW Chartered Accountant when given insider knowledge.

3(a)CJ will sell June futures

No. of contracts = £11.5m/£500,000 x 9/3

69

Futures profit/(loss)

	(i)	(ii)	(iii)
Opening rate	91.50	91.50	91.50
Closing rate	93.25	90.50	89.25
Movement	1.75	1.00	2.25

Profit/(loss) on futures

$(1.75\% \times 3/12 \times 69 \times £500k)$	$(1\% \times 3/12 \times 69 \times £500k)$	$(2.25\% \times 3/12 \times 69 \times £500k)$
(£150,938)	£86,250	£194,063

Overall cost

	£	£	£
Payment on spot market			
£11.5m x 9/12 x 6.5%	(560,625)		
£11.5m x 9/12 x 9%		(776,250)	
£11.5m x 9/12 x 10%			(862,500)
Futures profit/(loss)	(150,938)	86,250	194,063
Total interest cost	(711,563)	(690,000)	(668,437)

Upside and downside risk are both removed by futures unlike options which remove only downside risk.

Most candidates' answers here were good, but common errors noted were (i) using a twelve months' borrowing cost (rather than nine), (ii) using different profits/losses on futures to the ones given in the question (many altered the futures price by the % in the question rather than just taking it as the profit/loss).

Total possible marks

10

Maximum full marks

10

3(b)

CJ should buy May put option contracts as follows:

$$\frac{£18.225\text{m}}{(6750 \times £10)} = 270 \text{ contracts}$$

	Portfolio & Index falls £17,955,000	Portfolio & Index rises £18,360,000
Portfolio value at 1 May		
Option exercised ([6750 - 6650] x 270 x £10)	270,000	0
	<u>18,225,000</u>	<u>18,360,000</u>
Cost of option (135 x 270 x £10)	(364,500)	(364,500)
	<u>17,860,500</u>	<u>17,995,500</u>
Current value of portfolio	18,225,000	18,225,000
Decrease in portfolio value	<u>364,500</u>	<u>229,500</u>

Part (b) was also generally well answered, but too many candidates failed to recognise that the company would buy put option contracts and then failed to make the correct decision regarding the option (i.e. exercise/abandon).

Total possible marks	8
Maximum full marks	8

3(c)

CJ should sell futures $\frac{£18.225\text{m}}{(6720 \times £10)} = 272 \text{ contracts rounded up}$

	£
Portfolio value at 1 May	17,955,000
Gain on future ([6720 - 6630] x 272 x £10)	<u>244,800</u>
	18,199,800
Current value of portfolio	<u>18,225,000</u>
Decrease in portfolio value	<u>25,200</u>

Not 100% efficient because (i) basis i.e. 1 April values of FTSE100 index and futures contract are different and (ii) the rounding of the number of contracts.

This was generally well answered and most candidates scored high marks.

Total possible marks	8
Maximum full marks	8

3(d)

The key ethical issue here is confidentiality.

One should not take financial advantage of unpublished "inside" information. Keep the information confidential, do not disclose it, even inadvertently in social settings. And do not use it for personal gain.

This was straightforward and most candidates demonstrated a good understanding of the key ethical issues.

Total possible marks	4
Maximum full marks	4



FINANCIAL MANAGEMENT

This paper consists of **THREE** questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet.
2. Answer each question in black ballpoint pen only.
3. Answers to each question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must **NOT** be removed from the examination hall.

**DO NOT TURN OVER UNTIL YOU
ARE INSTRUCTED TO BEGIN WORK**

You **MUST** enter your candidate number in this box.

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Consultants

- 1a. Hawke Appliances Ltd (Hawke) is a UK-based manufacturer of household appliances. It has a financial year end of 31 December. You work for Hawke and have been asked to advise the company's board on the viability of a proposed new product.

The company is considering the development of a new vacuum cleaner, the JH143. This will be more expensive than Hawke's other vacuum cleaners but it contains a number of innovative design features that Hawke's board believes will be attractive in an increasingly competitive market. Because of these market conditions, Hawke's board wishes to evaluate the JH143 over a three-year time horizon.

Selling price, materials and unskilled labour

You have obtained the following information on the budgeted price and costs per unit for the JH 143 (in 31 December 2014 prices):

	£
Selling price	155
Materials	53
Unskilled labour	28

Fixed costs are not expected to increase as a result of producing the JH143.

Skilled labour

Each JH143 will require one hour of skilled labour that is in short supply. Hawke will need to transfer some of its skilled labour away from making another older vacuum cleaner (the JH114), which requires half the skilled labour time per unit of the JH143. The current selling price of the JH114 is £96 and its materials and unskilled labour costs total £74 per unit (in 31 December 2014 prices). Hawke's skilled labour is paid £8.80 per hour (in 31 December 2014 prices).

Inflation

Revenues and costs are expected to inflate at a rate of 4% pa.

Sales volumes

Hawke commissioned market research at a cost of £55,000 for the JH143 project, half of which remains unpaid and is due for settlement on 31 December 2014. An extract from the results of that market research is shown here:

	2015	2016	2017
Estimated annual sales of the JH143 (units)	50,000	95,000	45,000

Machinery

Specialised new production machinery will be required in order to make the new vacuum cleaner. This machinery will cost £4.5 million to buy on 31 December 2014 and will have an estimated scrap value of £1 million on 31 December 2017 (in 31 December 2017 prices). If production of the existing JH114 is reduced then some of Hawke's older machinery could be sold on 31 December 2014. This machinery had a tax written down value of £80,000 on 1 January 2014 and Hawke estimates that it could be sold for £220,000.

The machinery will attract 18% (reducing balance) capital allowances in the year of expenditure and in every subsequent year of ownership by the company, except the final year. In the final year, the difference between the machinery's written down value for tax purposes and its disposal proceeds will be treated by the company either:

- as an additional tax relief, if the disposal proceeds are less than the tax written down value, or
- as a balancing charge, if the disposal proceeds are more than the tax written down value.

Corporation tax

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Working capital

Hawke will invest in working capital at a rate of 10% of the JH143's annual sales revenue, to be in place at the start of each year. It expects to recover the working capital in full on 31 December 2017.

Cost of capital

Hawke uses a money cost of capital of 12% pa for investment appraisal purposes.

Requirements

- Using money cash flows, calculate the net present value on 31 December 2014 of the proposed development of the JH143 and advise the company's board whether it should proceed with the investment. **(16 marks)**
- Ignoring the effects on working capital**, calculate the sensitivity of your advice in part (i) to
 - changes in the selling price of the JH 143. **(3 marks)**
 - changes in the volume of sales of the JH 143. **(4 marks)**

- 1b. Hawke's board is also investigating the possibility of buying another company, Durram Electricals Ltd (Durram) which is a successful retailer of electrical goods. The board has obtained the following information about Durram:

Earnings and cash flows for the year ended 31 August 2014	£700,000
Expected growth of earnings and cash flows	5% pa
Book value of equity at 31 August 2014	£3,600,000
Average industry P/E ratio	11
Cost of capital	12% pa

Hawke's board has no experience of buying another company and you have been invited to the next board meeting to answer these questions:

- (1) What range of values is reasonable for Durram on 31 August 2014?
- (2) Why do many acquisitions not benefit the bidding firm?
- (3) Would it be better to pay for Durram in cash or with Hawke's shares?

Requirement

Prepare calculations and notes that will enable you to answer these questions at the next board meeting. **(12 marks)**

Total: 35 marks

2. You are an ICAEW Chartered Accountant and work in the finance team at Tower Brazil plc (Tower). The company manufactures wallpaper and paint for major UK homeware retailers and has been trading since 2001. It has a financial year end of 31 August. Extracts from its most recent management accounts are shown below.

Income Statement for the year ended 31 August 2014

	£'000
Profit before interest	9,356
Debenture interest	(2,338)
Profit before tax	7,018
Tax at 21%	(1,474)
Profit after tax	5,544
Dividends - preference shares	(480)
Dividends - ordinary shares	(4,509)
Retained profits	555

Balance Sheet at 31 August 2014

	£'000
£1 ordinary share capital	16,500
Retained earnings	26,420
	42,920
6% £1 preference shares	8,000
5% debentures at nominal value (redeemable 2016)	46,750
	97,670

The market values of Tower's long-term finance on 31 August 2014 are shown below:

£1 ordinary share capital	£4.20/share
6% £1 preference shares	£0.80/share
5% debentures	£110%

Extracts from the minutes of Tower's board meeting, 1 September 2014

AB (Production Director) once again raised the issue of Tower's "gearing problem" and said that gearing was now over 50%. DB (Marketing Director) and WR (Sales Director) concurred. All three felt that gearing should be reduced as a matter of urgency, otherwise, according to AB, it's very risky and the company's share price (and cost of capital) will be adversely affected which will make new projects difficult to justify.

It was agreed to investigate the implications of using a rights issue to address the gearing problem. The rights issue would enable ordinary shareholders to significantly increase their investment and so reward them for their loyalty. It was proposed that a one for two rights issue would be made, but concerns were raised that this would reduce the company's earnings per share figure by more than 10%.

WR raised the point that dividends have increased 3% pa on average over the past five years. He suggested that rather than raising more capital the company could change its dividend policy. As a result it would retain more of its profits for re-investment. He thought this would not be popular with shareholders, but that, if they *did* react badly to the change then Tower could always pay a one-off special dividend to make up for any shortfall.

As a result of these discussions the board decided to explore the implications of making a 1 for 2 rights issue which would raise sufficient funds to purchase and cancel 60% of Tower's debentures by market value.

In advance of the next board meeting, you have been asked by your manager, Luke Cleeve, to prepare calculations and advice for Tower's directors. Luke pointed out to you that you should "be careful with this information as it's potentially price sensitive and not in the public domain."

Assume that the corporation tax rate will be 21% pa for the foreseeable future.

Requirements

- (a) Calculate Tower's theoretical ex-rights share price if a 1 for 2 rights issue were made on 1 September 2014. **(3 marks)**
- (b) (i) Calculate Tower's earnings per share figure for the year ended 31 August 2014 and for the year ended 31 August 2015 after the proposed rights issue (assuming no change in profit before interest).
(ii) Calculate and comment on the terms of the rights issue required if the earnings per share figure is not to worsen by more than 10% for the year ended 31 August 2015. **(11 marks)**
- (c) Calculate Tower's gearing (debt / debt + equity) at 31 August 2014 using both book and market values and advise its board as to whether it has a "gearing problem" and how its gearing level could affect its share price. Where relevant, make reference to theories regarding the impact of capital structure on share price. **(9 marks)**
- (d) Advise Tower's board as to whether the suggested change in dividend policy would have a negative impact on the company's share price. Where relevant, make reference to theories regarding the impact of dividend policy on share price. **(9 marks)**
- (e) Explain the ethical implications for an ICAEW Chartered Accountant of having access to "price-sensitive information". **(3 marks)**

Total: 35 marks

PLEASE TURN OVER

3. You should assume that the current date is 30 September 2014

You work in the finance team at JEK Computing Ltd (JEK), which is a UK-based computer services company. Founded in 2008, it has to date operated exclusively in the UK but its board recently decided to expand its operations by looking overseas for new contracts.

JEK is ready to submit a tender bid for a contract with the government of Estonia. The local currency in Estonia is the euro. As this would be the first in a series of possible contracts with this government, and to make the tender bid more competitive, the board is using a lower sales margin than is usual on its UK contracts. The following summary information has been prepared:

Estonian contract

Total costs plus margin £12.420 million

Tender bid on 30 September 2014 at the current spot rate of €1.2165/£ €15.109 million

JEK's board understands that the successful bidder will be announced on 31 October 2014. If JEK wins the bid then work would start on that date and the board estimates that it would be completed on 31 December 2014 when payment would be received from the Estonian government.

The board is concerned that the €/£ exchange rate has changed quite significantly over the past three months and that if this trend continues then it could have an impact on the profitability of the contract. The board would like, therefore, to consider hedging against exchange rate risk immediately on 30 September 2014, even though the outcome of the tender bid is not yet decided.

The spot €/£ exchange rate over the past three months is summarised below:

Exchange rate (€/£)	at 30 June 2014	1.1150 – 1.1463
	at 31 July 2014	1.1373 – 1.1692
	at 31 August 2014	1.1600 – 1.1926
	at 30 September 2014	1.1832 – 1.2165

You have been asked to advise JEK's board and the following information has been made available to you at the close of business on 30 September 2014:

Sterling interest rate (lending)	3.2% pa
Sterling interest rate (borrowing)	4.2% pa
Euro interest rate (lending)	2.6% pa
Euro interest rate (borrowing)	3.4% pa
Three-month over the counter (OTC) put option on euro, exercise price (€/£)	1.2150
Three-month over the counter (OTC) call option on euro, exercise price (€/£)	1.1818
Three-month forward contract premium (€/£)	0.0025-0.0020
Forward contract arrangement fee (per euro converted)	£0.002
Relevant OTC option premium (per euro converted)	£0.012

Requirements

- (a) Estimate the spot rate on 31 December 2014 on the assumption that the €/£ exchange rate continues to change at the same rate as for the period 30 June to 30 September 2014. **(2 marks)**
- (b) **On the assumption that JEK's tender bid is successful:**
- (i) Calculate JEK's sterling receipt on 31 December 2014 using your answer to part (a) above.
- (ii) Calculate JEK's sterling receipt on 31 December 2014 if it uses
- a forward contract
 - a money market hedge
 - an OTC currency option
- (9 marks)**
- (c) With reference to your calculations in part (b) above, discuss the issues that should be taken account of by JEK's board when considering whether it should hedge the Estonian contract, assuming the tender bid is successful. **(8 marks)**
- (d) Explain the implications for JEK of using each of the hedging instruments in part (b)(ii) above if its tender bid is unsuccessful. **(6 marks)**
- (e) Explain the principle of interest rate parity (IRP) and, given the information provided above, calculate the forward rate of exchange on 31 December 2014 using IRP, commenting on your result. You should use the average current spot and borrowing/lending rates for the purposes of this calculation. **(5 marks)**

Total: 30 marks

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. In many cases, more marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

General point about candidates' handwriting

As in previous papers, there were a number of instances in the scripts where the markers found it extremely difficult to read the candidates' handwriting. If a marker is unable to read what has been written then no marks can be awarded for the passage in question.

QUESTION 1

Total marks: 35

General comments

This question had the highest average mark on the paper. Candidate performance was very good.

This was a four-part question that tested the candidates' understanding of the investment decisions and valuation element of the syllabus.

In the scenario a UK manufacturer of household appliances was planning (i) the development of a new product and (ii) the possible purchase of an electrical goods retailer. Part (a) for 16 marks required candidates to advise the company's board, based on an NPV calculation, whether the proposed product manufacture should proceed. Candidates were required to deal with relevant cash flows, tax allowances and costs, inflation and working capital. In part (a)(ii) for seven marks they had to calculate the sensitivity of their calculations to changes in (i) the proposed selling price and (ii) estimated sales volumes. Part (b) was worth twelve marks and required candidates to calculate a range of values for the target retailer and then provide guidance for the board on the inherent dangers of buying another company and the best method with which to pay for it, i.e. cash or shares.

1(a)(i)

	Y0	Y1	Y2	Y3
	£'000	£'000	£'000	£'000
New machine	(4,500.000)			1,000.000
Tax relief (Working 1)	170.100	139.482	114.375	311.043
Old machine	220.000			
Tax due (W2)	(29.400)			
Sales (W3)		8,060.000	15,926.560	7,845.926
Materials (W4)		(2,756.000)	(5,445.856)	(2,682.801)
Unskilled labour (W5)		(1,456.000)	(2,877.056)	(1,417.329)
Lost contribution (W6)		(2,288.000)	(4,521.088)	(2,227.231)
Tax on extra profits (W7)		(327.600)	(647.338)	(318.899)
Working capital (W8)	(806.000)	(786.656)	808.063	784.593
Total cash flows	(4,945.300)	585.266	3,357.660	3,295.303
12% discount factor	1.000	0.893	0.797	0.712
PV	(4,945.300)	522.643	2,676.055	2,346.256
NPV	599.654			

The NPV is positive and so the investment should go ahead as it will enhance shareholder wealth

The market research fee is not a relevant cash flow as it is sunk/committed (candidates needed to state this to get the mark and not just ignore).

Working 1				
£'000	£'000	£'000	£'000	£'000
Cost/WDV	4,500.000	3,690.000	3,025.800	2,481.156
WDA @ 18%/Bal. allowance	(810.000)	(664.200)	(544.644)	(1,481.156)
WDV/sale	<u>3,690.000</u>	<u>3,025.800</u>	<u>2,481.156</u>	<u>1,000.000</u>
Tax on WDA @ 21%	170.100	139.482	114.375	311.043
Working 2				
WDV b/f	80.000			
Balancing charge	<u>140.000</u>			
Sale proceeds	<u>220.000</u>			
Tax due on bal. charge @ 21%	(29.400)			
Working 3				
Sales units	50,000	95,000	45,000	
Selling price/unit	$£155 \times 1.04$	$£155 \times 1.04^2$	$£155 \times 1.04^3$	
Sales	<u>8,060.000</u>	<u>15,926.560</u>	<u>7,845.926</u>	
Working 4				
Sales units	50,000	95,000	45,000	
Material cost/unit	$£53 \times 1.04$	$£53 \times 1.04^2$	$£53 \times 1.04^3$	
Materials	<u>2,756.000</u>	<u>5,445.856</u>	<u>2,682.801</u>	
Working 5				
Sales units	50,000	95,000	45,000	
Unskilled cost/unit	$£28 \times 1.04$	$£28 \times 1.04^2$	$£28 \times 1.04^3$	
Unskilled costs	<u>1,456.000</u>	<u>2,877.056</u>	<u>1,417.329</u>	
Working 6				
Sales units	50,000	95,000	45,000	
Lost contribution/unit ($[(£96-£74) \times 2]$)	$£44 \times 1.04$	$£44 \times 1.04^2$	$£44 \times 1.04^3$	
Variable costs	<u>2,288.000</u>	<u>4,521.088</u>	<u>2,227.231</u>	
Working 7				
Extra profit (sales less M, VC & LC)	1,560.000	3,082.560	1,518.566	
Tax at 21%	<u>343.200</u>	<u>678.163</u>	<u>334.085</u>	
Working 8				
Sales	8,060.000	15,926.560	7,845.926	
Sales increment	8,060.000	7,866.560	(8,080.634)	
Working capital at 10%	(806.000)	(786.656)	808.063	784.593
In part (a)(i) most candidates scored well. The main weakness evident was the opportunity cost calculation, which was either completely ignored (by the weakest candidates) or halved instead of doubling the lost volume. Also many candidates included calculations regarding skilled labour, which was not a relevant cost. A number of candidates failed to calculate the balancing charge arising on the sale of the old machinery.				
Total possible marks				16
Maximum full marks				16

1(a)(ii)			
Sales	8,060.000	15,926.560	7,845.926
Discount rate at 12%	$\times 0.893$	$\times 0.797$	$\times 0.712$
PV of sales	7,197.580	12,693.468	5,586.299
Total PV of sales	25,477.347		
less: Tax at 21%	(5,350.243)		
	<u>20,127.104</u>		
Sensitivity of sales price	<u>599.654</u>		
	20,127.104		
	<u>= 3%</u>		
Sensitivity of sales volume			
Contribution (£30 x 50 x 1.04)	£1,560.000		
Contribution (£30 x 95 x 1.04 x 1.04)		£3,082.560	
Contribution (£30 x 45 x 1.04 x 1.04 x 1.04)			£1,518.566
Discount rate at 12%	$\times 0.893$	$\times 0.797$	$\times 0.712$
PV of contribution	1,393.080	2,456.800	1,081.219
Total PV of contribution	4,931.099		
less: Tax at 21%	(1,035.531)		
	<u>3,895.568</u>		
Sensitivity of sales volume	<u>599.461</u>		
	3,895.568		
	<u>= 15.3%</u>		
Part (a)(ii) was generally done well, but a disappointing number of candidates used contribution rather than sales revenue in their first set of sensitivity calculations.			
Total possible marks			7
Maximum full marks			7

1(b)	
(1) Possible values for Durram	
Asset value (book value) =	£3.6m
P/E – with current earnings – $11 \times £0.7m$ =	£7.7m
P/E - with one year of growth – $11 \times (£0.7m \times 1.05)$ =	£8.1m
Future cash flows/earnings (12% discount rate) for PV of future cash flows (£0.7m x 1.05)/(12%-5%) =	£10.5m
Dividend valuation (no growth) - £0.7m/12% =	£5.8m
(2) Reasons why acquisitions do not benefit the bidding firm	
The price paid is too high and synergies go to the target shareholders.	
Lack of fit within the existing group of companies, so cost savings and synergies are not as great as forecast.	
Transaction costs – underwriting, legal fees etc. - are expensive and reduce any gains made.	
Talented staff in the target company may leave.	
The takeover/merger may be because of management hubris rather than an increase in shareholder value.	
The subsidiary is too small and does not warrant the management time required.	
Conglomerate discount may exist, i.e. the individual parts of the business are worth more than the group as a whole.	
(3) Is it better to pay with cash or shares?	
<u>Paying in cash</u>	
This is more attractive to the target shareholders as the value is certain, but there may be personal tax implications.	
This may cause liquidity problems for the bidding firm and so it may be necessary to increase its gearing.	
Lower transaction costs will arise with a cash purchase.	
<u>Paying with shares</u>	
There will be a dilution of ownership and any gains made will now be shared with the target shareholders.	

Candidates coped well, as expected, with the book value and P/E methods of valuation, but many were unsure of themselves (as in previous papers) when valuing the company based on discounted cash flows. A high proportion of candidates struggled with the reasons for the failure of acquisitions, but in general the cohort was stronger when explaining the implications of buying in cash or shares.

Total possible marks

14

Maximum full marks

12

Consultants

GCA

QUESTION 2**Total marks: 35****General comments**

This question had the second highest average mark on the paper and the majority of candidates did well enough to “pass” it.

This was a five-part question that tested the candidates’ understanding of the financing options element of the syllabus.

In the scenario the board of a UK manufacturer was concerned about the company’s gearing levels. The board is considering either (i) a rights issue to buy back debt or (ii) reducing future dividend payments.

In part (a) for three marks candidates were required to calculate the company’s theoretical ex-rights price. Part (b) was worth eleven marks. Half of these were allocated to (b)(i) which required candidates to calculate next year’s EPS figure (based on the fact that some of the debt would have been repaid). Part (b)(ii) required candidates to calculate and explain the implications for the rights issue of restricting the change in the company’s EPS to 10%. Part (c) for nine marks asked candidates to calculate the company’s current gearing levels and then advise the board, with reference to their calculations and generally accepted theory, whether or not the company had a gearing “problem”. Part (d) was a more discursive section and candidates were asked to explain (again with reference to generally accepted theory) the possible impact of a change in dividend policy on the company’s share price. Finally, for three marks, part (e) tested the candidates’ understanding of the ethical implications facing an ICAEW Chartered Accountant when in possession of price-sensitive information.

2(a)Theoretical ex-rights price

			£m
Funds to be raised by rights issue:	$60\% \times £46,750 \times 1.10$		30.855
Current market capitalisation	16.50m	£4.20	69.300
1 for 2 rights issue	<u>8.25m</u>	£3.74	<u>30.855</u>
	<u>24.75m</u>		<u>100.155</u>
TERP =	$£100.155/24.75m$		£4.05/share

In part (a) most candidates scored full marks, but many failed to calculate correctly the market value of the debt being redeemed via the rights issue.

Total possible marks

3

Maximum full marks

3

2(b)

(i) Current earnings per share $(£5.544m - £0.480m)/16.5m$ £0.307

Current earnings figure $(£5.544m - £0.480m)$ 5,064,000
 plus: Debenture interest saved $(£28.050m \times 5\% \times 79\%)$ 1,107,975
 New earnings figure 6,171,975

New EPS $£6,171,975/24,750,000$ £0.249

(ii) If EPS reduces by 10%, then new EPS is $£0.307 \times (1-10\%)$ £0.2763

New total shares $£6,171,975/£0.2763$ 22,338m
 Current shares in issue 16.500m
 New shares to be issued 5.838m

Rights issue price/share $£30.855m/5,838m$ £5.29

As this is above the current market price (£4.20) the rights issue would not be successful.

Part (b)(i) was reasonably well done, but many candidates struggled with (or ignored) the calculation of the adjustment to the interest charge caused by the debenture redemption. Also, as noted in previous papers, many candidates calculated, incorrectly, the earnings figure before preference dividends. Part (b)(ii) was also reasonably well done, but many candidates tried to adjust the earnings figure rather than, as was required, the number of shares.	
Total possible marks	11
Maximum full marks	11

2(c)	
Gearing level (BV)	£54,750/£97,670 56.1%
Gearing level (MV)	Equity MV £69,300
	PSC MV 6,400
	Debt MV (£46,750 x 1.10) <u>51,425</u>
	<u>127,125</u> £57,825/£127,125 45.5%
So gearing at MV is under 50%. Gearing would be a problem if it was causing WACC to rise (tax advantage outweighed by debenture holders and shareholders wanting a higher return) and MV to fall.	
Gearing theory – Traditional view/Modigliani & Miller (MM) view/Modern view – balance between tax benefits and bankruptcy costs.	
In part (c) it was the calculation of gearing using market values that caused most problems (again, as in previous papers). A disappointing number of candidates included retained earnings in their market value of equity figure. Most candidates' understanding of the theory of gearing and market value were good, but, in general, there was too little application of this understanding to the actual scenario.	
Total possible marks	9
Maximum full marks	9

2(d)	
Dividend policy and share price – Traditional view/MM and irrelevance theory/Modern view – including signaling, clientele effect and agency theory.	
Impact of special dividend – the market is not in favour of such dividends generally, i.e. the share price may well fall as a result, and so it seems to defeat the object of retaining profit for investment.	
This was mostly done well, but too few candidates gave a sufficient range of points regarding the “real world” impact of the dividend policy and most candidates ignored the special dividend.	
Total possible marks	9
Maximum full marks	9

2(e)	
Unpublished information of a price sensitive nature should remain confidential, not be disclosed and not be used to obtain a personal advantage	
In general this part was answered well.	
Total possible marks	3
Maximum full marks	3

QUESTION 3**Total marks: 30****General comments**

The average mark for this question was the lowest in the paper and equated to a marginal "fail" and so, overall, was not done well.

This was a five-part question that tested the financial risk element of the syllabus.

The scenario was based on a UK computer services company which was tendering for the sale of a euro contract and its board was considering hedging against a weakening of the euro despite having not yet won the tender. The question tested candidates' understanding of (i) foreign exchange risk management and (ii) the principle of interest rate parity.

Part (a) for two marks required candidates to estimate a future spot rate based on recent changes. Part (b) for nine marks required them to calculate the company's sterling receipt from the tender contract based on three hedging strategies. In part (c) for eight marks candidates had to advise the company's board as to the advantages/disadvantages of each of the strategies, based on their calculations in part (b), assuming that the tender bid was successful. In part (d) they had to explain the implications for the company if the tender bid was unsuccessful. Finally, for part (e) candidates were required to explain the principles of interest rate parity, making use of the interest and forward contract rates given in the question.

3(a)			
Exchange rate (€/£)	30 June 2014	1.1150 – 1.1463	
	30 September 2014	1.1832 – 1.2165	
	Change	<u>0.0682 – 0.0702</u>	
	% change (three months)	$\frac{0.0702}{1.1463}$	6.12%
Estimated spot rate at 31/12/14	1.2165×1.0612		1.2909
Foreign exchange risk management is regularly tested in the examination, but despite this many candidates did not get all of the calculation marks available. In part (a) the weaker scripts failed to calculate the growth rate or applied it (2% per month) once, but not three times as required.			
Total possible marks			2
Maximum full marks			2

3(b)			
Sterling receipt at estimated spot rate at 31/12/14	<u>€15,109,000</u>		£11,704,237
	1.2909		
Forward contract	<u>€15,109,000</u>	<u>€15,109,000</u>	£12,440,510
	(1.2165 - 0.0020)	1.2145	
less : Cost	15,109,000 x £0.002	(£30,218)	£12,410,292
Money Market Hedge			
Borrow in euros	<u>€15,109,000</u>		€14,981,655
	1.0085		
Convert @ spot rate	<u>€14,981,655</u>		£12,315,376
	1.2165		
Lend in sterling	£12,315,376 x 1.008		£12,413,899
Option (a put option @ exercise price)	<u>€15,109,000</u>		£12,435,391
	1.2150		
less : Cost	15,109,000 x £0.012	(£181,308)	£12,254,083

Here, as expected, most candidates did well, but quite a few used, erroneously, the estimated spot rate from part (a) rather than the current spot rate given in the question. Many candidates failed to identify the OTC currency option as a put and many also treated it as a traded option.

Total possible marks	9
Maximum full marks	9

3(c)Outcomes (in order)

Spot rate at 30/9/14 (as per question)	12,420,000
Money Market Hedge	12,413,899
Forward contract	12,410,292
OTC option	12,254,083
Estimated spot rate at 31/12/14	11,704,237

The best outcome is if the current spot rate does not alter. The worst is if sterling continues to strengthen at 2% per month and given the lower margin, the contract may make a loss as the receipt would be significantly less than £12.42m. However, interest rates suggest that sterling will weaken (forward rate premium), which would be of benefit to JEK (higher sterling receipt), but the results are all still below the £12.42m.

The MMH and the forward contract give the best outcomes, but the latter has expensive (fixed) costs (£0.002/€). The option has a very high fixed cost (£0.012/€), but it may be that sterling will weaken and it could be abandoned, to JEK's benefit.

If JEK's board is prepared to risk that sterling will weaken then it would be best not to hedge as none of the hedging methods produces £12.42m i.e. they all result in a reduction of, or elimination of, an already low margin. If not, the MMH would be the best option albeit with a reduced margin but hopefully this can be recovered from the follow-on contracts potentially available.

This was not done well and too often candidates relied on textbook theory rather than referring to the figures calculated.

Total possible marks	8
Maximum full marks	8

3(d)Forward exchange contract (FC)

If JEK's bid is not successful, but the company has signed up to a forward exchange contract, then JEK will have an obligation to sell €15.109 in three months' time. It will therefore have to buy that sum of euros, which, if the pound has weakened, will cost an increased amount of sterling.

Money market hedge (MMH)

JEK would have to repay the euro borrowing at 31 December 2014, but would need to convert this back from sterling.

Any profit or loss on FC or MMH depends on the spot rate on 31 December 2014.

Currency option - at worst, this would not be taken up, but JEK would incur the £181,308 cost. JEK may exercise option if profitable to do so on 31 December 2014 – this depends on spot rate at that date.

In general this was also done poorly and too few candidates were able to explain the implications of losing the tender bid.

Total possible marks	6
Maximum full marks	6

3(e)	
The principle of interest rate parity (IRP) means that if an investor places money into a currency with a high interest rate s/he will be no better off after conversion back into their domestic currency using a forward contract than if they had left the money invested at the domestic interest rate.	
Average spot rate x $\frac{1 + \text{Average euro interest rate}}{1 + \text{Average sterling interest rate}}$	= Forward contract rate
1.19985 x $\frac{1.0075}{1.00925}$	= 1.1977
Average forward contract premium is 0.00225 and $(1.19985 - 0.00225) =$	1.1976
As these two rates are almost identical it would appear that IRP is working.	
Overall the responses to part (e) were good, but many candidates used annual rather than quarterly interest rates in their calculations.	
Total possible marks	5
Maximum full marks	5