Answers

1 **(a)** The project cash flow contains a number of errors of principle which should be corrected. As the project cash flows are shown after tax, the corrections should be made net of tax by either adding back or deducting the change required.

- Interest has been deducted and should be added back as this finance charge is properly charged through the application of the discount rate.
- Depreciation should be added back as this is not a cash flow.
- The indirect cost charge should be added back as this does not appear to be a decision relevant cost.
- Infrastructure costs should be deducted as these have not been included in the original projection.
- Site clearance and reinstatement costs of $5 million have been included net of tax.
- The unclaimed capital allowance is calculated as follows:

	0	1	2	3	4	5	6
Capital investment	150·00	50·00					
Deduct FYA at 50%	–75·00	–25·00					
Deduct WDA at 25% of residual		–18·75	–20·31	–15·23	–11·43	–8·57	–6·43
Pool	75·00	81·25	60·94	45·71	34·28	25·71	19·28
Proceeds of sale							7·00
Unclaimed CA							12·28

This will generate a positive tax benefit in year six of $3·68 million at the tax rate of 30%.

The adjusted project cash flow and net present value calculation for this project are as follows:

	0	1	2	3	4	5	6
Project after tax cash flow	–127·50	–36·88	44·00	68·00	60·00	35·00	20·00
Add back net interest			2·80	2·80	2·80	2·80	2·80
Add back depreciation (net of tax)			2·80	2·80	2·80	2·80	2·80
Add back ABC charge (net of tax)			5·60	5·60	5·60	5·60	5·60
Less corporate infrastructure costs			–2·80	–2·80	–2·80	–2·80	–2·80
Estimate for site clearance							–3·50
Tax benefit of unrecovered capital allowances							3·68
Adjusted project cash flow	–127·50	–36·88	52·40	76·40	68·40	43·40	28·58
Discount factor	1·0000	0·9091	0·8264	0·7513	0·6830	0·6209	0·5645
Discounted cash flow at 10%	–127·50	–33·52	43·31	57·40	46·72	26·95	16·14
Net present value	29·48						

The sensitivity of the project to a $1 million increase in capital expenditure is as follows:

Sensitivity to a $1 million increase in CAPEX at year 0	0	1	2	3	4	5	6
Equipment purchase/written down value	1	0·50	0·38	0·28	0·21	0·16	0·12
FYA	–0·5						
WDA			–0·13	–0·09	–0·07	–0·05	–0·04	–0·03
Balance	0·5	0·37	0·29	0·21	0·16	0·12	0·09
Impact upon CAPEX	–1						
Tax saving due to WDA and FYA	0·15	0·039	0·027	0·021	0·015	0·012	0·009
Unrecovered allowance							0·027
Net impact	–0·85	0·039	0·027	0·021	0·015	0·012	0·036
Discount factor	1·0000	0·9091	0·8264	0·7513	0·6830	0·6209	0·5645
Discounted cash flow	–0·85	0·0355	0·0231	0·0158	0·0102	0·0075	0·0203
Net present value	–0·74						

Thus an increase in CAPEX by $1 million results in a loss of NPV of $0·74 million due to the benefit of the capital allowances available discounted over the life of the project.

(b) The discounted payback is estimated as follows:

	0	1	2	3	4	5	6
Discounted cash flows from project	−127·50	−33·52	43·31	57·40	46·72	26·95	16·14
Cumulative discounted cash flow	−127·50	−161·02	−117·72	−60·32	−13·60	13·35	29·48
Payback (discounted)	4·50						

The duration of a project is the average number of years required to recover the present value of the project.

Duration	0	1	2	3	4	5	6
Discounted cash flow at 10%			43·31	57·40	46·72	26·95	16·14
Present value of return phase	190·52						
Proportion of present value in each year			0·2273	0·3013	0·2452	0·1415	0·0847
Weighted years			0·4546	0·9039	0·9809	0·7073	0·5082
Duration (= sum of the weighted years)	3·55						

Payback, discounted payback and duration are three techniques that measure the return to liquidity offered by a capital project. In theory, a firm that has ready access to the capital markets should not be concerned about the time taken to recapture the investment in a project. However, in practice managers prefer projects to appear to be successful as quickly as possible. Payback as a technique fails to take into account the time value of money and any cash flows beyond the project date. It is used by many firms as a coarse filter of projects and it has been suggested to be a proxy for the redeployment real option. Discounted payback does surmount the first difficulty but not the second in that it is still possible for projects with highly negative terminal cash flows to appear attractive because of their initial favourable cash flows. Conversely, discounted payback may lead a project to be discarded that has highly favourable cash flows after the payback date.

Duration measures either the average time to recover the initial investment (if discounted at the project's internal rate of return) of a project, or to recover the present value of the project if discounted at the cost of capital as is the case in this question. Duration captures both the time value of money and the whole of the cash flows of a project. It is also a measure which can be used across projects to indicate when the bulk of the project value will be captured. Its disadvantage is that it is more difficult to conceptualise than payback and may not be employed for that reason.

(c) Report to Management
Prepared by: D Obbin, ACCA

Project acceptance and criteria for acceptability

I have reviewed the proposed capital investment and after making a number of adjustments have estimated that the project will increase the value of the firm by approximately $29·48 million. The project is highly sensitive to changes in the level of capital investment. Increases in immediate capital spending on this project will lead to a concomitant loss in the overall project value less the tax saving resulting from the increased capital allowances. However, given the size of the net present value of the project, it is unlikely that an adverse movement in this variable would lead to a significant reduction in the value of the firm.

The analysis of the payback on this project using discounted cash flows suggests that the value of the capital invested will be wholly recovered within five years of commencement. The bulk of the cash flow recovery occurs early within the life cycle of the project with an average recovery of the total present value occurring 3·55 years from commencement.

On the basis of the figures presented and the sensitivity analysis conducted, I recommend the Board approves this project for investment.

For many years the Board has used payback as one technique for evaluating investment projects. The Board has noted concerns that (i) the method chosen does not reflect the cost of finance either in the cash flows or in the discount rate applied and (ii) it fails to reflect cash flows beyond the payback date. Discounted payback surmounts the first but not the second difficulty. I would recommend that the Board considers the use of 'duration' which measures the time to recover either half the value invested in a project or, by alternative measurement, half the project net present value. Because this measure captures both the full value and the time value of a project it is recommended as a superior measure to either payback or discounted payback when comparing the time taken by different projects to recover the investment involved.

As part of its review process the Board has asked for sensitivities of the project to key variables. Sensitivity analysis demonstrates the likely gain or loss of project value as a result of small changes in the value of the variables chosen. Unfortunately, some variables such as, for example, price changes and the cost of finance, are highly correlated with one another and focusing upon the movement in a single variable may well ignore significant changes in another variable. To deal with this and given our background information about the volatility of input variables and their correlation, I would recommend that a simulation is conducted taking these component risks into account. Simulation works by randomly drawing a possible value for each variable on a repeated basis until a distribution of net present value outcomes can be established and the priority of each variable in determining the overall net present value obtained. Furthermore, the Board will be in a position to review the potential 'value at risk' in a given project.

I recommend that the Board reviews a simulation of project net present values in future and that this forms part of its continuing review process.

2 BBS Stores
Report to Management
From: N Erd, Financial Consultant

(a) Impact of Property Unbundling on the Statement of Financial Position and the Reported Earnings per Share

The unbundling of the buildings component entails a sale value of 50% of the land and buildings and 50% of the assets under construction to yield a sale value of $1,231 million. Under option 1 $360 million would be used to repay the outstanding medium-term loan notes and the balance as reinvestment within the business of $871 million. Option 2 would entail repayment of the loan and a share buyback. The value released would buy back $871 million/$4 = 217·75 million shares with a nominal value of $54·44 million and a charge to reserves of $817 million. The comparative balance sheets under each option are as follows:

	As at year end 2008 $m	Sale proceeds $m	Reinvestment option 1 $m		Share buyback option 2 $m		As at year end 2007 $m
ASSETS							
Non-current assets							
Intangible assets	190			190		190	160
Property, plant and equipment	4,050	−1,231	871	3,690	−1,231	2,819	3,600
Other assets	500			500		500	530
	4,740			4,380		3,509	4,290
Current assets	840	1,231	−1,231	840		840	1,160
Total assets	5,580			5,220		4,349	5,450
LIABILITIES							
Current liabilities	1,600			1,600		1,600	2,020
Non-current liabilities							
Borrowings and other financial liabilities	1,130		−360	770	−360	770	1,130
Other liabilities	890			890		890	900
	2,020			1,660		1,660	2,030
Total liabilities	3,620			3,260		3,260	4,050
Net assets	1,960			1,960		1,089	1,400
EQUITY							
Called up share capital – equity	425			425	−54	371	420
Retained earnings	1,535			1,535	−817	718	980
Total equity	1,960			1,960		1,089	1,400

The first option has the effect of reducing the company's book gearing from 36·6% (borrowing and other financial liabilities to total capital employed) to 28·2% with option 1 or increasing it to 41·4% with option 2. The net impact upon the earnings of the business is less straightforward. Under options 1 and 2 the company would benefit from a reduction in interest payable but would be required to pay an open market rent at 8% per annum on the property released. In addition, under option 1, the reduction in gearing would lead to a 30 basis points saving in interest on the variable component of the swap. Under option 1 the company would be able to earn a rate of return of 13% on the funds reinvested. The adjustment to the current earnings to show these effects is as follows:

	Current $m	Option 1 $m	Option 2 $m
Earnings for the year	670·00	670·00	670·00
add back interest saved (net of tax) $360 million × 6·2% × 0·65		14·51	14·51
reduction in credit spread on six-year debt $770 million × 0·003 × 0·65		1·50	
deduct additional property rent (net of tax) $1,231 × 8% × 0·65		−64·01	−64·01
add additional return on equity $871 million × 13% × 0·65		73·60	
Revised earnings	670·00	695·60	620·50
Number of shares in issue	1,700	1,700	1,484
Revised EPS (c per share)	39·41	40·92	41·81

Given that the company has swapped out its variable rate liability there will be no change in the interest charge to earnings for the six-year debt from the current 5·5% per annum unless the lender has the ability to vary the variable rate on current borrowing for changes in credit rating. Because the fixed rate and the floating rate are the same at 6·2% (given the current credit spread is 70 basis points over LIBOR, or in addition to the swap rate of 5·5%) the nominal value of the company's debt is equal to its current market value.

(b) Impact of unbundling on the firm's overall cost of finance

Because the current firm is a combination of both retail and property it is necessary to estimate the asset beta for the retail business alone. Once this is achieved it is then straightforward to estimate the asset beta of a firm with a given element of property removed.

The current equity cost of capital is given as follows:

$$E\left(r_e\right) = R_F + \beta_i \times ERP$$
$$E\left(r_e\right) = 5\% + 1.824 \times 3\% = 10.47\%$$

The current weighted average cost of capital is:

$$WACC = w_e r_e + w_d r_d \left(1 - T\right)$$
$$WACC = \frac{6,800}{6,800 + 1,130} \times 10.47\% + \frac{1,130}{6,800 + 1,130} \times 6.2\% \times .65 = 9.56\%$$

To calculate the unbundled cost of equity capital we first ungear the current company beta as follows:

$$\beta_A = \beta_e \times \left(1 - w_d'\right)$$

where

$$w_d' = \frac{V_d(1-T)}{V_e + V_d(1-T)} = \frac{1,130 \times 0.65}{6,800 + 1,130 \times 0.65} = 9.748\%$$

and

$$\beta_A = 1.824 \times \left(1 - 0.09748\right) = 1.646$$

The retail asset beta can then be calculated from the weighted average of the component betas as:

$$\beta_A = \frac{V_R}{V_T}\beta_R + \frac{V_P}{V_T}\beta_P$$

$$1.646 = \frac{4,338}{6,800} \times \beta_R + \frac{2,462}{6,800} \times 0.625$$

$$\beta_R = \left[1.646 - \frac{2,462}{6,800} \times 0.625\right] \times \frac{6,800}{4,338} = 2.225$$

However, the beta of the continuing firm will be a combination of this retail beta and the property beta of the remaining firm. On the assumption that the share price does not change under either option the cost of equity capital is estimated as follows:

	Option 1	Option 2
Value of the equity	$= 425 \times 4 \times 4 = \$6,800$ million	$= 371 \times 4 \times 4 = \$5,936$ million
Asset beta of reconstructed firm	$\beta_A = \frac{V_R}{V_T}\beta_R + \frac{V_P}{V_T}\beta_P$	$\beta_A = \frac{V_R}{V_T}\beta_R + \frac{V_P}{V_T}\beta_P$
	$\beta_A = \frac{5,569}{6,800} \times 2.225 + \frac{1,231}{6,800} \times 0.625 = 1.935$	$\beta_A = \frac{4,705}{5,936} \times 2.225 + \frac{1,231}{5,936} \times 0.625 = 1.893$
Tax adjusted market gearing	$= \frac{770 \times 0.65}{6,800 + 770 \times 0.65} = 6.86\%$	$= \frac{770 \times 0.65}{5,936 + 770 \times 0.65} = 7.78\%$
Equity beta of reconstructed firm	$\beta_e = \frac{1.935}{\left(1 - 0.0686\right)} = 2.0775$	$\beta_e = \frac{1.893}{\left(1 - 0.0778\right)} = 2.053$
Cost of equity	$= 5\% + 2.0775 \times 3\% = 11.23\%$	$= 5\% + 2.053 \times 3\% = 11.16\%$

$$WACC(1) = \frac{6,800}{\left(6,800 + 770\right)} \times 11.23\% + \frac{770}{\left(6,800 + 770\right)} \times 5.9\% \times 0.65 = 10.48\%$$

And

$$WACC(2) = \frac{5,936}{\left(5,936 + 770\right)} \times 11.16\% + \frac{770}{\left(5,936 + 770\right)} \times 6.2\% \times 0.65 = 10.34\%$$

Note that under option 1, the variable component of the swap would be reduced by 30 basis points. However, the market value of the debt would remain unchanged because given LIBOR and the fixed component of the swap are the same at 5.5%, the reduction in basis points will reduce the effective coupon and the yield to 5.9%.

Both options will significantly increase the cost of capital for the company from 9.56% to 10.48% in the case of option 1 and 10.34% in the case of option 2.

(c) The potential impact upon the value of the firm

The value of the firm for a low geared business such as this is represented by the present value of the firm's future earnings discounted at the company's cost of capital. The ownership of property does not add value to the business providing that the company can enjoy a continuing and unencumbered use of the asset concerned.

On the assumption that an independent property company can be established and an arm's length rental agreement concluded then it is possible that the ownership of the property assets could be taken off balance sheet. However, the ease with which this can be done depends upon the local accounting regulations and accounting standards.

As it stands option 1 appears to increase the potential earnings more than currently or than option 2. However option 2 offers the highest EPS. With an unbundling exercise such as this it is difficult to predict with precision the likely impact upon the value of the firm. The removal of part of the firm's property portfolio will increase the equity beta but this will be offset by the reduction in the firm's gearing. Much also depends upon the ability of the business to generate a return of 13% on the reinvested proceeds of the property sale. If this is not achieved then a significant loss in shareholder value would result. For this reason the shareholders might prefer the lower risk option of a repurchase of their equity at 400c leaving the firm's EPS largely unchanged.

The analysis of the impact upon the firm's equity cost of capital assumes that the value of the firm's equity at 400c per share will remain unchanged. In practice that is unrealistic and a model of the firm's value would have to be constructed to test the full impact of either option on shareholder value. Given the problem is recursive in that the output value determines the estimation of the equity beta, which is also an input variable in the calculation, computer modelling would be required.

3 **(a)** The requirement is to discover the fixed exchange rate for an agreed monthly delivery of Euros over six months to settle a contract for 10,000 tonnes of aggregate at an agreed price of €220 per tonne.

The calculation required is to equate the present value of a single agreed forward rate with the present value of the six forward rates specified in the question.

The procedure is to calculate the present value of the variable forward rates using discount rates derived from the yield curve data. The sum of the discounted forward prices is then divided by the sum of the discount rates to obtain an equivalent fixed forward rate on the swap. The calculations are as follows:

	1	2	3	4	5	6
Forward Rates (Euros per $)	0·8326	0·8314	0·8302	0·8289	0·8278	0·8267
$ short zero coupon yield curve	3·25%	3·45%	3·50%	3·52%	3·52%	3·52%
Discount factor	0·9973	0·9943	0·9913	0·9883	0·9854	0·9826
Prepaid forward price	0·8303	0·8267	0·8229	0·8192	0·8157	0·8123
Present value of prepaid forward prices	4·9272					
Sum of discount factors	5·9392					
Fixed forward rate on swap	0·8296					

As rates change continuously, the monthly discount factor should be calculated on a continuous time basis:

$$\text{Discount Factor}_1 = e^{-yxt} = e^{-0.0325*\frac{1}{12}} = 0.9973$$

The use of discrete time discounting whilst less accurate would be accepted.

(b) Currency swaps can be for the exchange of different currencies at an agreed rate, or for the swap of interest rate liabilities on borrowing in different currencies. This currency swap entails an agreement to swap a constant dollar sum in exchange for a sequence of currency payments in Euros at the agreed amount each month. The attraction of a currency swap such as this is that it avoids having to enter into a sequence of forward contracts (a forward strip) with a currency dealer with the associated charges and budget variability entailed. The two rates quoted assume a zero arbitrage swap rate and no commission on the swap. Inevitably, a higher rate will be quoted on the swap to cover the required commission. A disadvantage of swap agreements is the relatively complex contract procedure which must be pursued to ensure that the counter-parties to the swap are in agreement as to the terms. Forward contracts tend to be less cumbersome to both negotiate and contract with the currency dealer.

4 To: Chief Financial Officer
   From: Deputy Financial Officer

   Four issues of concern

   The four issues you have raised with me touch upon our ethical and commercial responsibilities.

   (i)   The payment of a commission to an official in any country can be justified if it was in recognition of a service performed that (a) she or he was legitimately entitled to perform for payment, (b) that the payment was duly authorised within this company and (c) a service was received for which the payment was fair and reasonable. Clearly, such a payment should not have been made if it contravened the ruling law in either this or the official's country. Given this, a payment for consultancy, legal or lobbying services to an independent consultant would be legitimate. However, given that the individual concerned was an official of the agency concerned then the payment should not have been authorised. As the payment was for a substantial amount the matter should be taken up with the company's chief executive officer with a view to an internal investigation being mounted. Disciplinary action should be considered when a more detailed understanding of the circumstances is known. It may also be appropriate to raise this with the health department in the government of the country concerned with a view to full public disclosure of the facts once the situation has been clarified.

   (ii) The actions of the agent in using price sensitive information for personal gain would be classed as insider dealing irrespective of whether the transactions took place on the shares, or on options on the shares of our company. Much depends on what could be established in the circumstances. Did the agent know that the licensing agreement would be forthcoming or was it a speculative trade on the anticipation that it would be granted? If it were the former then it would be classed as insider trading. The more difficult issue relates to speculative trading in that if the attempt to gain the licence was in the public domain then the dealing would not be an issue. If however, the agent was only aware of the possibility through his or her relationship with this company then it would be insider dealing.

   (iii) This problem raises a number of issues. First, hedging is not an efficient means of reducing translation risk. Translation risk arises because of the conversion of assets and liabilities held in dollars into the domestic currency for accounting purposes. Translation risk will impact upon the residual earnings of the business but does not impact upon the firm's cash flow as no transaction has occurred. There would appear to be an absence of risk management policy in this area and even though a senior member of the treasury team has been making the trades, policy of this type should be set at board level through a risk management committee. Second, substantial trades of this type should be authorised and again, it would appear, that there is an absence of policy in this area. Disciplinary action against the treasury manager concerned would only be appropriate if trading of this type lay outside his or her role description or if there was an explicit policy in place requiring authorisation for trades of greater than a given size. In deciding what action to take, making a gain or a loss is irrelevant. Third the current position suggests a $1·25 million loss is likely against a dollar position of $12·5 million. This may not be material from the point of view of the company's overall financial position but the potential for further loss on an uncovered position such as this should be immediately reversed by shortening the contract concerned. If the loss is deemed material then a brief statement to shareholders should be made specifying the magnitude of the loss and the action taken.

   (iv) This problem appears to be an abuse of copyright and as such is against the WTO's Trade Related Aspects of Intellectual Property Rights 'TRIPS' agreement. However, to gain protection under TRIPS we have to make sure that we have made supply available of the drugs concerned. If a member country takes the view that we have abused our patent position then they can issue a 'compulsory licence' which would allow a competitor to produce the product under licence. At the Doha ministerial conference in 2001 it was agreed that TRIPS should not prevent a country adopting measures for the protection of its population's health. In this case it would appear that the dispute is one of piracy and gaining protection through the local courts. Whilst this could in principle be resolved through the WTO and the dispute resolution procedure, this may be an issue which would be most satisfactorily resolved through intergovernmental mediation. Any bilateral concession would need to be multilateralised through the WTO in light of the member's most favoured-nation obligations. It would be worthwhile attempting to discover exactly why the government concerned has blocked access to the courts to ensure that there are no public health policy issues involved and from there attempting to secure the involvement of our own government in helping to resolve the issue.

5 (a)   Net present value is not a sufficient criterion for choosing between projects when capital is in short supply. On the assumption that the priority of the firm is to maximise net present value overall then the optimal ranking of projects is achieved through the profitability index as measured by the net present value per $ of invested capital at year zero. The ranking of the projects using the net present value index is as follows:

	Investment	NPV	IRR	PI	CumInv
P0805	−120	19	17%	0·1573	120
P0802	−640	69	13%	0·1085	760
P0801	−620	55	16%	0·0892	1,380
P0803	−240	20	15%	0·0841	1,620
P0806	−400	29	15%	0·0733	2,020
P0804	−1,000	72	13%	0·0719	3,020

The first project, PO801 is now the marginal project given the available capital of $1,200,000. However, this ordering of projects is not viable as PO801 cannot be varied and is either promoted in the ranking or is not produced as the plan as it stands requires an investment of $1,380 million to satisfy the supermarket contract. The investment structure can be specified in one of two ways therefore:

Acceptance of PO801 ahead of PO802 (which can be scaled):

	Investment	NPV	IRR	PI	CumInv	proportion	NPV
PO805	−120	19	17%	0·1573	120	1	19
PO801	−620	55	16%	0·0892	740	1	55
PO802	−640	69	13%	0·1085	1,380	0·71875	50
PO803	−240	20	15%	0·0841	1,620		
PO806	−400	29	15%	0·0733	2,020		
PO804	−1,000	72	13%	0·0719	3,020		
						Plan NPV	124

Removal of PO801 from the plan:

	Investment	NPV	IRR	PI	CumInv	proportion	NPV
PO805	−120	19	17%	0·1573	120	1	19
PO802	−640	69	13%	0·1085	760	1	69
PO803	−240	20	15%	0·0841	1,000	1	20
PO806	−400	29	15%	0·0733	1,400	0·5	15
PO804	−1,000	72	13%	0·0719	2,400		
PO801	−620	55	16%	0·0892	740		
						Plan NPV	123

(i) The revised plan should be to produce all of PO805, PO801 and a reduced scale of production on PO802 as shown in the revised schedule.

(ii) The net present value of the plan is $124 million

The internal rate of return cannot be calculated using the proportions of projects invested because of scale effects but must be calculated for the overall plan. Using the interpolation method and calculating the net present value of the optimum plan at 14% and 18% the IRR can be estimated by interpolation:

Discount	NPV
14%	12
18%	−85

$$IRR = 14\% + \frac{12}{12 + 85} \times 4\% = 14·5\%$$

(iii) The profitability index for the plan = 124/1200 = $0·1033 per dollar invested.

(b) When calculating the rate for short-term financing the maximum rate which should be offered is that which generates a zero net present value on those projects which do not qualify for the current plan. The internal rate of return is not appropriate as that is the rate that would be the maximum rate for investment over the life of the projects concerned. This is however, a short-term capital rationing problem. The profitability index gives the net present value of each pound invested.

Project	Now	2009	2010	2011	2012	2013	2014
PO802 (balance of the marginal project)	−180	23	34	56	59	118	−8
PO803	−240	120	120	60	10		
PO806	−400	245	250				
PO804	−1,000	300	500	250	290		
Cash flows of rejected projects	−1,820	688	904	366	359	118	−8
Discount at 10%	−1,820	625	747	275	245	73	−5
Net present value of rejected projects	141						
Profitability index	0·07742						

Therefore these projects could support a maximum additional finance charge of the following:

Additional finance = $1,820,000 * 0·0774 = $141,000

Given that 10% is the rate assuming no short-term market failure for finance for this company, the maximum rate for the one year over which capital rationing is expected to hold is 17·74%. It is assumed that at the end of year 1, the borrowing of $1,820 million will be refinanced at 10%.

Professional marks are awarded for the quality of the layout, clarity and persuasiveness of the presentation and integration of analytical data with the written text.

			Marks
1	**(a)**	Add back net interest	1
		Add back depreciation	1
		Add back indirect cost charge	1
		Deduct infrastructure costs	1
		Estimation of site clearance	1
		Calculation of tax on unrecovered capital allowances	4
		Calculation of NPV	1
		Sensitivity to change in CAPEX	4
		Total	**14**
	(b)	Calculation of the discounted payback	2
		Calculation of duration	2
		Comparative assessment of the techniques	1
		Total	**5**
	(c)	Review of techniques and recommendation	2
		Definition and interpretation of duration measure	2
		Review of sensitivity and its deficiencies	2
		Comment on role of Monte Carlo simulation	2
		Total	**8**
	(d)	Professional marks	**1**
2	**(a)**	Comparative statement of financial position under the two alternatives (2 each)	4
		Revision of earnings figure for each alternative and calculation of EPS (3 each)	6
		Discussion of the unbundling impact upon the statements of financial position and earnings	3
		Total	**13**
	(b)	Estimation of the current cost of equity	1
		Estimation of the current weighted average cost of capital	1
		Ungearing of current beta and estimation of retail beta	2
		Estimation of the cost of equity under each alternative	4
		Estimation of the WACC under each alternative	2
		Total	**10**
	(c)	Note on problems of taking property assets off balance sheet	2
		Difficulty of predicting net impact of unbundling on shareholder value	2
		Conclusion	2
		Total	**6**
	(d)	Professional mark	**3**

			Marks
3	**(a)**	Calculation of discounted prepaid forward prices	4
		Calculation of present value of forward prices	4
		Calculation of fixed forward rate on swap	4
		Total	**12**
	(b)	Avoidance of commission on strip elements	2
		Avoidance of budget variability	2
		Method shown is for zero arbitrage valuation – extra for commission will be required	2
		Differences in cost of contracting	2
		Total	**8**
4		Essay	
		Discussion of problems of paying commission, principles, ethics and recommendation	5
		Discussion of scope of insider trading and application to agents and options markets	5
		Discussion of relevance of hedging, authority for trading and action to be taken	5
		Advice on position with respect to abuse of patent with reference to TRIPS	5
		Total	**20**
5	**(a)**	Comment on the rationale for the use of PI under capital rationing	2
		Rank ordering of projects	2
		Alternative treatment of non-divisible project	4
		Calculation of overall NPV	2
		Calculation of project IRR graphically or by interpolation	2
		Calculation of profitability index on whole plan	1
		Total	**(max) 12**
	(b)	Calculation of the proportions of investment in each project	2
		Calculation of the PI for the rejected projects	2
		Combination of result with current cost of capital to give overall opportunity cost	2
		Summary comments and advice	2
		Total	**8**