ACCA

Paper F9

Financial Management

December 2017

Revision Mock B – Answers

To gain maximum benefit, do not refer to these answers until you have completed the revision mock questions and submitted them for marking.

SECTION A

1 D

Directors are placed in control of resources that they do not own and are effectively agents of the shareholders. They should be working in the best interests of the shareholders. However, they may be tempted to act in their own interests, for example by voting themselves huge salaries. The background to the agency problem is the separation of ownership and control – in many large companies the people who own the company (the shareholders) are not the same people as those who control the company (the board of directors).

2 B

The length of the operating cycle is 52 + 19 + 14 – 40 + 31 = 76 days

3 B

Let O = ordering cost

185 = √{[2 × O × (4 × 2,000)] ÷ [0.05 × 42]}

185 = √(16,000 × O ÷ 2.1)

O = 185^2 × 2.1 ÷ 16,000 = $4.49

Note that the period for demand must be the same as that given for holding cost. As holding cost is given as an annual figure quarterly demand must be converted to annual demand by multiplying by 4.

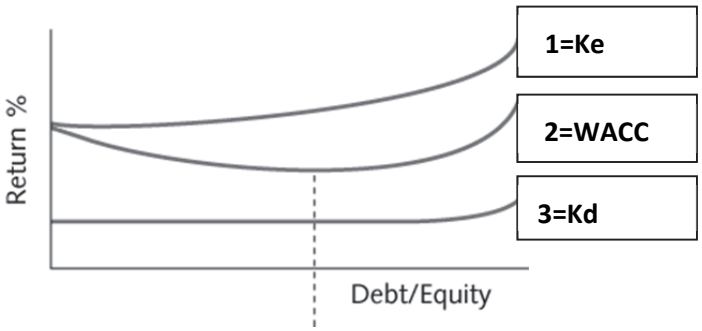
4 C

The $7,500 and $310,000 are future incremental cash flow figures so are relevant. The $7,000 is sunk (past) cost so it is not a relevant cost.

5 B

The return on capital employed and the gross profit percentage would assess profitability and the gearing would assess financial risk.

6 A



7 B

Reducing mortality rates is likely to be a stated objective of the hospital and as such is a measure of output, or effectiveness.

8 C

Statement A describes a contractionary fiscal policy.

Statement B describes an expansionary monetary policy.

Statement C is correct: fiscal policy refers to the balance of taxation and government spending. In an effort to boost demand, the government would reduce taxes and increase government spending.

Statement D describes a contractionary monetary policy.

9 B

The outcome of a simulation is likely to be a spread/ range of possible outcomes and usually a probability distribution associated with those outcomes. It is not an 'optimising' technique i.e. the output of a simulation is designed to better inform the decision maker, but there is no clear 'invest/don't invest' decision rule to apply. It does consider many variables changing together and presents a range of possible outcomes with associated probabilities so statements A, C and D are all true.

10 C

A is the Gordon growth model.

B is as a result of assuming that a perfect capital market exists; it is not a conclusion.

D contradicts the dividend valuation model, which is not disputed by M&M.

The correct answer is C.

11 A

Using PPT, the exchange rate in 1 year = 1.5000 × (1.06/1.05) = 1.5143

USD 10,000 then equates to 10,000/1.5143 = GBP 6,604.

12 A

Answer B describes Ijara

Answer C describes Mudaraba

Answer D describes Musharaka

13 A

Both statements are true.

14 B

As the production results of the two products both have positive NPVs under any scenario, the company would like to produce them both, but as they are mutually exclusive, they cannot both be produced – the machinery can only work on one product at a time.

The company should therefore choose to produce whichever product has the higher average NPV, calculated using expected values.

Product X NPV $	Probability (%)	Expected value
3,000	10	300
3,500	20	700
4,000	40	1,600
4,500	20	900
5,000	10	500

Total X = $4,000

Product Y NPV $	Probability (%)	Expected value
2,000	5	100
3,000	10	300
4,000	40	1,600
5,000	25	1,250
6,000	20	1,200

Total Y = $4,450

15 B

Government expenditure on goods and services is influenced by fiscal policy, not monetary policy.

SECTION B

16 C

Cost of financing = receivables balance × overdraft rate

Current cost of financing = $4,500,000 × 8% = $360,000

New cost of financing = $4,500,000 × 50% × 6% = $135,000

Saving = $360,000 – $135,000 = **$225,000**

17 D

Receivables days = receivables/sales × 365 – rearrange equation:

Receivables = days × sales/365

Must split sales 60%:40% for the different days

30 day receipts receivables = 30 × $20,000,000 × 60%/365 = $986,301

60 day receipts receivables = 60 × $20,000,000 × 40%/365 = $1,315,068

Total receivables = $986,301 + $1,315,068 = $2,301,369

$2,301,000 to nearest $000

18 D

Annual cost = [1 + (discount/amount left to pay)] $^{\text{number. of periods}}$ – 1

No. of periods = 365/no. of days earlier the cash is received

No. of periods = 365/(82 – 30) = 7.02

Discount = 1, left to pay = 99

Annual cost = [1 + (1/99)] $^{7.02}$ – 1 = 0.073 = **7.3%**

19 B

The invoice to the customer will contain payment details for the factor rather than the supplier so customers will know that they are paying the factor rather than the supplier. The other statements are true.

20 C

While offering discounts may be desirable for some businesses it is not a key aspect of credit policy.

21 C

Current earnings = 5,000 × $7 = $35,000

Adjust for non-sustainable item. Director's salary will change going forward – reduce to reasonably expected level and take tax increase on reduced salary level into account

Addition to earnings = $60,000 × (1 – 0.3) = $42,000

Sustainable earnings for P/E valuation = $35,000 + $42,000 = $77,000

22 B

Valuation = P/E ratio × earnings

No direct ratio given, use proxy *average* P/E ratio from listed company = 9

Valuation = 9 × $50,000 = $450,000

Reduce by 20% to reflect lower marketability of unlisted company shares

$450,000 × 80% = $360,000

23 A

Net realisable values are useful as a minimum rather than a maximum for the seller as it tells them what they could potentially receive if they couldn't find a purchaser and sold the assets off instead.

If the business is not a going concern then it is unlikely a purchaser could be found and the assets may well end up being sold off. If a purchaser is found they would be unlikely to pay more than this value.

If the intention of a purchaser is to strip the business's assets after purchase then they would not want to pay more than the value of those assets.

If the business is a property investment company then the majority of its value will come from its property assets. Using net realisable values, i.e. market values, would therefore be an appropriate basis of valuation.

24 B

P0 = Do (1 + g)/(ke – g)

Do = this year's dividend of $2.10 per share

Ke = 12% (0.12)

Growth = d1/d0 = $2.205/$2.10 – 1 = 0.05 (5%)

P0 = $2.10 × 1.05/(0.12 – 0.05) = $31.50

NB the same answer is found by using D1 directly instead of d0 (1 + g)

25 C

Free cash flows represent the cash flows that all investors have access to on an ongoing basis – hence normal business expenses and tax are deducted in its calculation.

Also deducted are cash flows that the business will need to spend to maintain operations at an appropriate level. Hence deductions are made for ongoing investment in non-current assets and working capital. Investors cannot appropriate these cash flows for themselves as the business needs them to maintain this appropriate level of operations.

However, distributions to investors are not deducted as investors do have access to these cash flows. This means that interest to debt holders and dividends to equity holders are not deducted.

26 A

Zigzag will be selling Euros to the bank to get pounds in return. The rate is a spread quoted in Euros and the bank buys high – hence the appropriate exchange rate for the forward contract is the 1.990 rather than the 1.890.

500,000/1.990 = $251,256 received by Zigzag.

27 D

Expected receipt after six months = €500,000

Euro interest rate over six months = 5% × 6/12 = 2.5%

Euros to borrow now in order to have €500,000 liability after six months = €500,000/1.025 = €487,805

Spot rate for selling Euros today = €2/$1

Dollar deposit from borrowed euros at spot rate = €487,805/2 = $243,903

28 A

Using purchasing power parity theory:

$$S_1 = S_0 \times \frac{(1+h_c)}{(1+h_b)}$$

Where:

S_0 = current spot rate

S_1 = expected future spot rate

h_b = inflation rate in country for which the spot is quoted (base currency)

h_c = inflation rate in the other country (counter currency)

$S_1 = 2.00 \times 1.03/1.045 = €1.971/\$$

29 B

As the contracts are denominated in Euros, Zigzag should think about what it wants to do with Euros. In 6 months' time, Zigzag will receive Euros from its customer and will sell them to buy $. To mitigate the effect of the exchange rate moving, it will want to offset the sale of Euros by buying back at the same time the Euro futures contracts.

This means that Zigzag should sell the Euro futures contracts now and then buy them back on close out.

30 C

Call options give the right to buy currency at a fixed rate and put options give the right to sell currency at a fixed rate. As the options are in Euros, Zigzag must think about what it wants to do with Euros.

When it receives the €500,000 from its customer, it will want to sell them for $. It therefore needs a put option to fix the sale price of the Euros.

SECTION C

31 GOLIATH CO

Key answer tips

There are easy marks to be had within part (a) by following the NPV proforma approach, in particular to ensure that errors in tax treatment don't occur.

Part (b) requires the candidate to explain two different approaches to calculating NPV. Note the conclusion that whichever method is used, the NPV should be unaffected (except for rounding differences).

In part (c) getting the timings right is crucial. Most students will include the one year delay in tax savings but won't realise that as the first tax benefit accrues at time period 1, the benefit in cash flow wont' be seen until time period 2.

(a)

Tutorial note:

The NPV proforma approach will help to ensure e.g. working capital and scrap proceeds are not part of operating cash flows. Care must be taken when calculating incremental working capital.

	0	*1*	*2*	*3*	*4*	*5*
		$000	$000	$000	$000	$000
Sales revenue (W1)		6,084	6,327	6,580	6,844	
Variable costs (W2)		(2,374)	(2,504)	(2,642)	(2,787)	
Fixed costs*		(263)	(276)	(289)	(304)	
Cash flow before tax		3,447	3,547	3,649	3,753	
Taxation			(689)	(709)	(730)	(751)
TA depreciation (W3)			250	188	141	372
Capital cost/scrap	(5,000)				250	
Working capital (W4)	(500)	(24)	(25)	(26)	(27)	
After-tax cash flow	(5,500)	3,423	3,083	3,102	3,387	(379)
Discount at 12%	1	0.893	0.797	0.712	0.636	0.567
Present values	(5,500)	3,057	2,457	2,209	2,154	(215)

NPV **4,162**

This project has a positive NPV which indicates it should be undertaken.

*Fixed costs are inflated by 5% year on year.

Workings

(W1) Sales revenue

Year	*1*	*2*	*3*	*4*
Selling price ($/unit)	676.00	703.04	731.16	760.41
Sales (units/year)	9,000	9,000	9,000	9,000
Sales revenue ($000/year)	6,084	6,327	6,580	6,844

(W2) Variable costs

Year	*1*	*2*	*3*	*4*
Variable costs ($/unit)	263.75	278.26	293.56	309.71
Sales (units/year)	9,000	9,000	9,000	9,000
Variable costs ($000/year)	2,374	2,504	2,642	2,787

(W3) Tax-allowable depreciation

Year	*Tax-allowable depreciation* ($000)		*Tax benefit* ($)	
	5,000			
1	(1,250)	(5,000 × 0.25)	250	(0.2 × 1,250)
2	(937.5)	(3,750 × 0.25)	188	(0.2 × 937.5)
3	(703.1)	(2,812.5 × 0.25)	141	(0.2 × 703.1)
	2,109.4			
	(250)	(scrap value)		
4	1,859.4		372	(0.2 × 1,859.4)

(W4) Working capital

Year	*0*	*1*	*2*	*3*	*4*
Total working capital	500	523.50	548.11	573.87	600.84
Incremental (nearest $000)	500	24	25	26	27

Note the incremental figure is taken from the increase in each year and then rounded as appropriate. It would also be acceptable to look at the overall increase required and decide that in year 2, for example, would also be 24.

Working capital is not refunded at the end of this project as the machine will be replaced, so it is assumed that this working capital investment will continue.

(b) Money terms and real terms

Tutorial note:

The golden rule is to discount real cash flows with the real cost of capital, and to discount nominal (money) cash flows with the nominal (money) cost of capital.

A nominal (or money) terms approach to investment appraisal uses a nominal cost of capital to discount the nominal cash flows associated with the project. Nominal cash flows are obtained, by using forecast inflation rates and current price levels or estimates. Different cash flows may be inflated at different rates. Sometimes this is referred to as specific inflation.

A real terms approach to investment appraisal uses a real cost of capital to discount the real cash flows associated with the project. Real cash flows can be obtained by deflating the nominal cash flows by the general rate of inflation, or by using the current level or estimate. The real discount rate can be found by using the following equation:

$(1+i) = (1+r)(1+h)$

Where h = rate of inflation

r = real rate of interest

i = nominal (money) rate of interest

Whichever approach is used, the net present value will be the same because nominal cash flows and the nominal cost of capital are both discounted by the general rate of inflation to obtain real cash flows and the real cost of capital.

(c) Lease cost

Calculate the present value of leasing by discounting the lease cash flows and the associated tax savings at the post tax cost of borrowing. As the first lease payment is in advance at the start of an accounting period (stated specifically in the question) the first tax saving will be a year after the accounting period end, i.e. at time period 2.

Lease	Lease cost	Tax savings	NCF	d.f. 8%	PV
t0	(1,350,000)		(1,350,000)	1.000	(1,350,000)
t1	(1,350,000)		(1,350,000)	0.926	(1,250,100)
t2	(1,350,000)	270,000	(1,080,000)	0.857	(925,560)
t3	(1,350,000)	270,000	(1,080,000)	0.794	(857,520)
t4		270,000	270,000	0.735	198,450
t5		270,000	270,000	0.681	183,870
					(4,000,860)

Alternatively you could treat the cash flows as two annuities to speed up the calculations, with the lease payments as an advanced annuity starting at t0 and the tax savings as a delayed annuity starting at t2.

As the lease cost is $4,000,860 it is cheaper than the purchase present value given in the question of $4,097,000 and Goliath Co should choose to lease the asset.

Marking scheme			
			Marks
(a)	Inflated selling price per box		0.5
	Sales income		0.5
	Inflated total variable cost		0.5
	Inflated incremental fixed costs		0.5
	Tax liability calculation		0.5
	Tax liability timing		0.5
	Tax-allowable depreciation		3
	Incremental working capital investment		1
	Purchase cost		0.5
	Scrap value		0.5
	Discount at 12%		1
	NPV		1
	Comment on financial acceptability		1
		Maximum	11
(b)	Discussion of nominal terms approach		1–3
	Discussion of real terms approach		1–3
		Maximum	4
(c)	Lease cash flows value and timings		1
	Tax saving cash flows value and timings		1
	Discount factors 8%		1
	Present values and total PV		1
	Decision to lease instead of buy		1
		Maximum	5
Total			**20**

32 OXFIELD CO

Key answer tips

These are fairly standard requirements for this syllabus area with a mix of both calculations and discussion on WACC and CAPM. The trickiest element is picking out the relevant figures to use in the workings and discarding irrelevant information. In part (c) make sure you answer the question – it isn't just about how gearing affects WACC but about how it affects business valuation.

(a) Cost of equity using dividend growth model

The average dividend growth rate in recent years is 7%:

$(28.8/23.5)^{0.333} - 1 = 0.07$ or 7% per year

Using the dividend growth model:

$$K_e = \frac{Do(1+g)}{Po} + g$$

$= [(28.8 \times 1.07)/(2.10 \times 160)] + 0.07 = 0.1617$ or 16.17%

Cost of preference shares

$K_p = D_0/P_0$

$= [8/85] \times 100 = 9.41\%$

After-tax cost of debt of loan notes

K_d = IRR of relevant cash flows from the company's perspective.

The annual after-tax interest payment is $7.2 \times 0.79 = \$5.69$ per loan note.

Using linear interpolation:

Year	*Cash flow*	$	*5% Discount*	*PV* ($)	*10% Discount*	*PV* ($)
0	Market value	(97)	1.000	(97.00)	1.000	(97.00)
1–3	Interest, after tax	5.69	2.723	15.49	2.487	14.15
3	Redemption	105	0.864	90.72	0.751	78.86
				9.21		(3.99)

After-tax cost of debt $k_d = 5 + [((10 - 5) \times 9.21)/(9.21 + 3.99)] = 8.49\%$

Calculation of the WACC

Market values

Market value of equity = 160m × 2.10 = \$336 million

Market value of preference shares = 12m × 0.85 = \$10.2 million

Market value of 7.2% loan notes = 67m × (97/100) = \$64.99 million

Total market value = 336m + 10.2m + 64.99m = \$411.19 million

WACC = [(16.17 × 336) + (9.41 × 10.2) + (8.49 × 64.99)]/411.19 = 14.8%

Assumptions/explanations

(i) The formula for k_e assumes that future growth in dividends will be constant.

(ii) The use of 7% for the growth rate assumes that past growth will be continued in the future.

(iii) In the k_d calculation it has been assumed that the annual cash flows are allowable deductions for tax and that there is no delay on the tax relief.

(iv) Tax is assumed to remain at 21% for the next three years.

(v) That the current share price is fair and not distorted by short-term market factors.

(vi) That the dividend valuation model is valid, i.e. that investors are solely judging their investment value in terms of the future dividends it entitles them to.

Basis of weightings

(i) Both costs of capital (k_e, k_p and k_d) and the WACC have been calculated using current ex-dividend (ex-interest) market values, rather than statement of financial position/nominal values.

(ii) This is to ensure that a current market cost of finance is determined, rather than an historic cost. Ideally a future WACC is needed to discount future project cash flows, and the current WACC based on current market rates is the best estimate for this.

(b) CAPM

CAPM could have been used to estimate a project-specific k_e if the project activities were different from that of the company. This could then have been used to calculate a project-specific WACC.

The method for this would have been as follows.

(i) Find a listed company with activities similar to those of the project.

(ii) Look up its beta factor.

(iii) Adjust for gearing if necessary.

(iv) Put into the CAPM equation:

Project $k_e = r_f + ß\ (r_m – r_f)$

Note: r_f could be calculated by looking at yields on Government gilts.

r_m could be calculated by looking at movements on the FT all share index.

(c) M&M's gearing theories

Tutorial note:

Note that there are only 5 marks available for this section. Aim to make 5 good points while covering the question requirement.

Modigliani and Miller have two theories on how the gearing level of a company affects its WACC value. As the value of a business can be determined by its future cash flows discounted using its WACC, the lower the WACC value, the higher the business value will be.

In their first theory from 1958, they made the assumption that there was no taxation. This theory postulated that the WACC lowering effect of including a higher proportion of cheaper debt as the gearing level increases is exactly offset by the WACC raising effect of a rise in value of ke due to equity investors seeing higher risk for their investment at higher gearing.

M&M's conclusion here was that WACC and therefore business value is independent of gearing level.

In their second theory from 1963, the only change to their assumptions was that the inclusion of debt in the capital structure now leads to tax savings on interest payments and hence debt is even cheaper for the company than in their no tax theory.

The effect of this is that the inclusion of more debt always brings the WACC down and the business value up and so companies should gear up as much as possible to maximise their business value.

Marking scheme		
		Marks
(a)	Calculation of historic dividend growth rate	1
	Calculation of cost of equity using DGM	1
	Calculation of cost of preference shares	1
	Calculation of after-tax cost of debt, using linear interpolation	2
	Calculation of market values	1.5
	Calculation of WACC	2
	Assumptions/explanations (0.5 marks each) to max	1.5
	Basis of weightings	1
		11
(b)	CAPM used for project specific Ke	1
	CAPM equation	1
	Proxy beta needed	1
	Degear and regear the beta for financial risk	1
		4
(c)	Link WACC to business value	1
	M&M no tax theory	1
	Conclusion	1
	M&M with tax theory	1
	Conclusion	1
		5
Total		**20**