
Answers

Section 1

1 (a) Most likely scenario

Entrance fee revenues for each year can be calculated as follows:

	Annual revenue from 1 February 2005 to 31 January 2008 £000	Annual revenue from 1 February 2008 to 31 January 2012 £000	Annual revenue from 1 February 2012 to 31 January 2017 £000
40% x 28,000 x £15	168.0	40% x 22,000 x £15	40% x 5,000 x £15
60% x 28,000 x £12	201.6	60% x 22,000 x £12	60% x 5,000 x £12
	<u>369.6</u>	<u>290.4</u>	<u>66.0</u>

Other revenues can be calculated as follows:

Revenue	Annual revenue from 1 February 2005 to 31 January 2008 £000	Annual revenue from 1 February 2008 to 31 January 2012 £000	Annual revenue from 1 February 2012 to 31 January 2017 £000
Equipment hire	20% x 28,000 x £7	20% x 22,000 x £7	20% x 5,000 x x £7
Instruction	5% x 28,000 x £30	5% x 22,000 x £30	5% x 5,000 x £30
Bar and clubroom	50% x 28,000 x £5	50% x 22,000 x £5	50% x 5,000 x £5
	<u>151.2</u>	<u>118.8</u>	<u>27.0</u>

Incremental net cash flows for each year to 31 January can be calculated as follows:

	2005	2006	2007	2008	2009	2010	2011	2012	2013– 2017
	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Entrance fees		369.6	369.6	369.6	290.4	290.4	290.4	290.4	66.0
Other revenues		151.2	151.2	151.2	118.8	118.8	118.8	118.8	27.0
		<u>520.8</u>	<u>520.8</u>	<u>520.8</u>	<u>409.2</u>	<u>409.2</u>	<u>409.2</u>	<u>409.2</u>	<u>93.0</u>
Matting	355.0				355.0				
Sprinklers	82.0								
Chair lifts	106.0								
Gradient	174.0								
Access roads etc	165.0								
Parking	75.0								
Food (50% revenue)		35.0	35.0	35.0	27.5	27.5	27.5	27.5	6.3
Instruction		16.8	16.8	16.8	13.2	13.2	13.2	13.2	3.0
Electricity and power		20.0	20.0	20.0	20.0	20.0	20.0	20.0	–
Wages		45.0	45.0	45.0	45.0	45.0	45.0	45.0	–
Hire equipment	6.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	–
Marketing		120.0							
Lease	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	
	<u>1028.0</u>	<u>319.8</u>	<u>199.8</u>	<u>199.8</u>	<u>543.7</u>	<u>188.7</u>	<u>188.7</u>	<u>188.7</u>	<u>9.3</u>
Cash flows	(1028.0)	201.0	321.0	321.0	(134.5)	220.5	220.5	220.5	83.7
Discount rate (12%)	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	1.46
Present value	(914.9)	160.8	227.9	205.4	(76.7)	112.5	99.2	88.2	122.2
NPV	<u>24.6</u>								

Payback method

Under this scenario the payback is between five and six years. If the cash flows accrued evenly within the sixth year, the payback period would be five years four months $[(201.0 + 321.0 + 321.0 - 134.5 + 220.5) + (99.0/220.5 \times 12)]$. However, given the seasonal nature of the business, this is unlikely. This payback period is just outside the requirement set by the parent company.

Optimistic scenario

This scenario includes the following assumptions:

- The number of visitors will be 20% higher than the market research report forecasts. (i.e. at the high end of the forecast margin of error.)
- The plastic matting will last for five years. (i.e. at the high end of the supplier's estimate.)
- There will be no increase in electricity and power expenses as a result of the increase in visitor numbers.
- Additional car parking will be required.
- Additional wages will be incurred for the first three years of the lease period.

Entrance fee revenues for each year can be calculated as follows:

	Annual revenue from 1 February 2005 to 31 January 2008 £000	Annual revenue from 1 February 2008 to 31 January 2012 £000	Annual revenue from 1 February 2012 to 31 January 2017 £000
40% x 33,600 x £15	201.6	40% x 26,400 x £15	158.4
60% x 33,600 x £12	241.9	60% x 26,400 x £12	190.1
	<u>443.5</u>		<u>348.5</u>
			<u>79.2</u>

Other revenues can be calculated as follows:

Revenue	Annual revenue from 1 February 2005 to 31 January 2008 £000	Annual revenue from 1 February 2008 to 31 January 2012 £000	Annual revenue from 1 February 2012 to 31 January 2017 £000
Equipment hire	20% x 33,600 x £7	20% x 26,400 x £7	20% x 6,000 x x £7
Instruction	5% x 33,600 x £30	5% x 26,400 x £30	5% x 6,000 x £30
Bar and clubroom	50% x 33,600 x £5	50% x 26,400 x £5	50% x 6,000 x £5
	<u>181.4</u>	<u>142.6</u>	<u>32.4</u>

Incremental net cash flows for each year to 31 January can be calculated as follows:

	2005	2006	2007	2008	2009	2010	2011	2012	2013– 2017
	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Entrance fees		443.5	443.5	443.5	348.5	348.5	348.5	348.5	79.2
Other revenues		181.4	181.4	181.4	142.6	142.6	142.6	142.6	32.4
		<u>624.9</u>	<u>624.9</u>	<u>624.9</u>	<u>491.1</u>	<u>491.1</u>	<u>491.1</u>	<u>491.1</u>	<u>111.6</u>
Matting	355.0					355.0			
Sprinklers	82.0								
Chair lifts	106.0								
Gradient	174.0								
Access roads etc	165.0								
Parking	105.0								
Food (50% revenue)		42.0	42.0	42.0	33.0	33.0	33.0	33.0	7.5
Instruction		20.2	20.2	20.2	15.8	15.8	15.8	15.8	3.6
Electricity and power		20.0	20.0	20.0	20.0	20.0	20.0	20.0	–
Wages		60.0	60.0	60.0	45.0	45.0	45.0	45.0	–
Hire equipment	6.0	24.0	24.0	24.0	18.0	18.0	18.0	18.0	–
Marketing		120.0							
Lease	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	
	<u>1058.0</u>	<u>351.2</u>	<u>231.2</u>	<u>231.2</u>	<u>196.8</u>	<u>551.8</u>	<u>196.8</u>	<u>196.8</u>	<u>11.1</u>
Cash flows	(1058.0)	273.7	393.7	393.7	294.3	(60.7)	294.3	294.3	100.5
Discount rate (12%)	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	1.46
Present value	(941.6)	219.0	279.5	252.0	167.8	(31.0)	132.4	117.7	146.7
NPV	<u>342.5</u>								

Payback method

Under this scenario the payback is between three and four years. If the revenues accrued evenly within the fourth year the payback period would be approximately three years (273.7 + 393.7 + 393.7). This payback period is within the requirement set by the parent company.

Pessimistic scenario

This scenario includes the following assumptions:

- The number of visitors will be 20% lower than the market research report forecasts. (i.e at the lower end of the forecast margin of error.)
- Additional construction work costing £70,000 will be required and the delays caused by this additional work will result in a delay of two months in opening the new slope.
- Planning permission will be delayed by one month and modifications to the existing plans, costing £10,000 will be required. This delay is in addition to the delay arising from the additional construction work.
- The plastic matting from the US supplier will last for 2¹/₂ years and the replacement matting from the UK supplier will last for three years.
- The matting will be purchased from the US supplier at the spot rate when payment has to be made in January 2005 and that the £ sterling will weaken by 6% by the payment date.
- The electricity and power costs are time related and there will be savings in the first year as a result of the delay.

Revenues

Entrance fee revenues for the first year of operation will be reduced as a result of the delays in obtaining planning permission and in carrying out additional construction work. These delays will result in a total delay of three months and, based on past experience, 50% of the total visitors for the year are expected to visit the centre during this period.

Revenues can be calculated as follows:

	Annual revenue from 1 February 2005 to 31 January 2006 £000		Annual revenue from 1 February 2006 to 31 January 2008 £000		Annual revenue from 1 February 2008 to 31 January 2012 £000		Annual revenue from 1 February 2012 to 31 January 2017 £000	
40% x 11,200 x £15	67.2	40% x 22,400 x £15	134.4	40% x 17,600 x £15	105.6	40% x 4,000 x £15	24.0	
60% x 11,200 x £12	80.6	60% x £22,400 x £12	161.3	60% x 17,600 x £12	126.7	60% x 4,000 x £12	28.8	
	<u>147.8</u>		<u>295.7</u>		<u>232.3</u>		<u>52.8</u>	

Other revenues can be calculated as follows:

Revenue	Annual revenue from 1 February 2005 to 31 January 2006 £000		Annual revenue from 1 February 2006 to 31 January 2008 £000		Annual revenue from 1 February 2008 to 31 January 2012 £000		Annual revenue from 1 February 2012 to 31 January 2017 £000	
Equipment hire	20% x 11,200 x £7	15.7	20% x 22,400 x £7	31.4	20% x 17,600 x £7	24.6	20% x 4,000 x £7	5.6
Instruction	5% x 11,200 x £30	16.8	5% x £22,400 x £30	33.6	5% x 17,600 x £30	26.4	5% x 4,000 x £30	6.0
Bar and clubroom	50% x 11,200 x £5	28.0	50% x £22,400 x £5	56.0	50% x 17,600 x £5	44.0	50% x 4,000 x £5	10.0
		<u>60.5</u>		<u>121.0</u>		<u>95.0</u>		<u>21.6</u>

Net present value

Incremental net cash flows for each year to 31 January can be calculated as follows:

	2005	2006	2007	2008	2009	2010	2011	2012	2013– 2017
	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Entrance fees		147·8	295·7	295·7	232·3	232·3	232·3	232·3	52·8
Other revenues		60·5	121·0	121·0	95·0	95·0	95·0	95·0	21·6
		<u>208·3</u>	<u>416·7</u>	<u>416·7</u>	<u>327·3</u>	<u>327·3</u>	<u>327·3</u>	<u>327·3</u>	<u>74·4</u>
Matting	397·9			355·0			355·0		
Sprinklers	82·0								
Chair lifts	106·0								
Gradient	174·0								
Access roads etc	165·0								
Parking	75·0								
Additional work	70·0								
Modifications to plans	10·0								
Food (50% revenue)		14·0	28·0	28·0	22·0	22·0	22·0	22·0	5·0
Instruction		6·7	13·4	13·4	10·6	10·6	10·6	10·6	2·4
Electricity and power		15·0	20·0	20·0	20·0	20·0	20·0	20·0	–
Wages		45·0	45·0	45·0	45·0	45·0	45·0	45·0	–
Hire equipment	6·0	18·0	18·0	18·0	18·0	18·0	18·0	18·0	–
Marketing		120·0							
Lease	65·0	65·0	65·0	65·0	65·0	65·0	65·0	65·0	
		<u>1150·9</u>	<u>283·7</u>	<u>189·4</u>	<u>544·4</u>	<u>180·6</u>	<u>180·6</u>	<u>535·6</u>	<u>180·6</u>
Cash flows	(1150·9)	(75·4)	227·3	(127·7)	146·7	146·7	(208·3)	146·7	67·0
Discount rate (12%)	0·89	0·80	0·71	0·64	0·57	0·51	0·45	0·40	1·46
Present value	(1024·3)	(60·3)	161·4	(81·7)	83·6	74·8	(93·7)	58·7	97·8
NPV	(783·7)								

Payback method

Under this scenario, the project does not pay back the initial investment.

(b) Various points could be made in answering this section, including the following:

- The net present value method is consistent with the goal of shareholder wealth maximisation. It takes account of all relevant cash flows and recognises the time value of money whereas the payback method does not.
- The payback method is a form of 'break even' analysis and is not directly concerned with the profitability of the proposal. It can be seen as a partial method of dealing with risk.
- The use of multiple measures of appraisal can lead to conflicting signals (as in the case of the most-likely scenario). It is not clear how conflicting signals are dealt with by the parent company.
- Scenario analysis does not take account of the probability of events occurring, it does not distinguish between those factors that are within the control of managers and those that are not, and, finally, it does not offer a clear decision rule.
- Recommendations may include the use of NPV as the major criterion for the assessment of investment proposals (given the goal of the parent company) and the use of risk measures that take account of the probability of an event occurring.

(c) Various forms of operational and financial risk may be identified, which include:

- Obtaining planning permission
- Construction cost overrun
- Personal injury of snowboarders
- Reputation risk (if the new matting is unsuitable for snowboarding)
- Interest rate risk
- Currency risk
- Funding risk

The management of the various forms of risk may include building safeguards into the way in which the slope is operated, insurance, the use of hedging instruments, making managers accountable for managing the risk, transferring the risk to a third party.

If the expected increase in visitors to the centre does not materialise, the investment could result in a very large loss for a company of this size. The company may wish, therefore to consider possible exit strategies if demand for the slope is low.

- (d) Additional information may include answers to the following:
- Does the proposal fit with the overall objectives of the company?
 - How will the project be managed?
 - What are the key stages and milestones in the project?
 - Are the individuals responsible for managing the project capable of doing so? Are they committed to the project?
 - Are there other options that could be pursued and were these considered?
 - What will happen if the proposal is rejected?
 - On what basis have the key assumptions and forecasts used in the evaluation of the proposal been made? These could be discussed along with any additional computations arising from the scenario analysis.
 - Have all costs and benefits (financial and non-financial) been considered?
 - Will there be a post-completion audit to help assess the validity of estimates and assumptions?

(e) **Funding requirements**

The following calculations ignore any future borrowing costs.

Most likely scenario

Expense calculations

		Total operating expenses
		£000
Cost of sales		3,790·0
Selling and distribution		1,424·0
Administration		1,652·0
		<hr style="width: 100%;"/>
		6,866·0
		<hr style="width: 100%;"/>
Variable expenses	30% x £6,866	2,059·8
Fixed expenses	70% x £6,866	4,806·2
		<hr style="width: 100%;"/>
		6,866·0
		<hr style="width: 100%;"/>

Projected profit and loss account for the year ended 31 January 2005

		£000	£000
Sales (£7,350 x 1·08)			7,938·0
<i>Less</i>			
Variable expenses			
(£2,059·8 x 1·08)	2,224·6		
Fixed expenses	4,806·2		7,030·8
		<hr style="width: 100%;"/>	
Operating profit			907·2
Interest			48·0
			<hr style="width: 100%;"/>
Net profit			859·2
Dividends (50%)			429·6
			<hr style="width: 100%;"/>
Retained profit			429·6
			<hr style="width: 100%;"/>

Projected cash flow statement for the year ended 31 January 2005

		£000	£000
Operating profit			907·2
<i>Add</i> Depreciation charge			260·0
			<hr style="width: 100%;"/>
			1,167·2
<i>Less</i>			
Replacement fixed assets	240·0		
Interest	48·0		
Dividends	218·0		506·0
		<hr style="width: 100%;"/>	
Cash surplus for the year			661·2
Net balance at start of year	(5 – 3)		(2·0)
			<hr style="width: 100%;"/>
Balance at end of year			659·2
Proposed investment			(1,028·0)
			<hr style="width: 100%;"/>
Funding requirement			(368·8)
			<hr style="width: 100%;"/>

This calculation ignores any additional cash flows arising from the decision to invest in the new ski slope.

Optimistic scenario

This scenario assumes that:

- The rise in sales will be 10 per cent higher than the forecast figure
- New tour buses costing £100,000 will be required

Projected profit and loss account for the year ended 31 January 2006

	£000	£000
Sales [(£7,350 x 1.08) x 1.10]		8,731.8
<i>Less</i>		
Variable expenses [(2,059.8 x 1.08) x 1.1]	2,447.0	
Fixed expenses	4,831.2	7,278.2
Operating profit		1,453.6
Interest		48.0
		1,405.6
Net profit		1,405.6
Dividends (50%)		702.8
		702.8
Retained profit		702.8

Projected cash flow statement for the year ended 31 January 2005

	£000	£000
Operating profit		1,453.6
<i>Add</i> Depreciation charge		285.0
		1,738.6
<i>Less</i>		
Replacement fixed assets	240.0	
New fixed assets	200.0	
Interest	48.0	
Dividends	218.0	706.0
Cash surplus for the year		1,032.6
Net balance at start of year	(5 – 3)	(2.0)
		1,030.6
Balance at end of year		1,030.6
Proposed investment		(1,058.0)
		(27.4)
Funding requirement		(27.4)

Pessimistic scenario

This scenario assumes a sales figure that is 10% lower than the forecast.

Projected profit and loss account for the year ended 31 January 2005

	£000	£000
Sales [(£7,350 x 1.08) x 0.9]		7,144.2
<i>Less</i>		
Variable expenses [(£2,059.8 x 1.08) x 0.9]	2,002.1	
Fixed expenses	4,806.2	6,808.3
Operating profit		335.9
Interest		48.0
		287.9
Net profit		287.9
Dividends (50%)		144.0
		143.9
Retained profit		143.9

Projected cash flow statement for the year ended 31 January 2005

	£000	£000
Operating profit		335.9
Add Depreciation charge		260.0
		<hr/> 595.9
<i>Less</i>		
Replacement fixed assets	240.0	
Interest	48.0	
Dividends	218.0	506.0
	<hr/>	<hr/>
Cash surplus for the year		89.9
Net balance at start of year	(5 – 3)	(2.0)
		<hr/>
Balance at end of year		87.9
Proposed investment		(1,028.0)
		<hr/>
Funding requirement		(940.1)
		<hr/>

(e) When deciding between a term loan and preference shares, the following factors should be taken into account:

- The availability of adequate security
- The period over which the funding is required
- The relative cost of each form of finance
- The taxation implications of each form of finance
- The financial risks associated with each form of finance
- The effect on the debt capacity of the business
- The views of existing long-term lenders
- The commitment to repay the funds
- Any restrictions contained within the documents of incorporation of the company and existing loan agreements.

The fact that there is uncertainty over the amount of finance required may make a flexible term loan, which can be drawn as and when required, a more attractive form of funding than either a term loan for a fixed amount or preference share capital.

Diploma in Financial Management – Module B
Project DB2 incorporating subject areas:
Financial Strategy and Risk Management

Marking Scheme Project
Issue date February 2004

	Marks
1 (a) 13 marks most likely scenario, 10 marks other scenarios, 3 marks recommendation	36
(b) 5 marks comments, 3 marks recommendations	8
(c) 1 mark per risk, 2 marks managing risk (max. 20 marks)	20
(d) 2 marks per item (max. 12 marks)	12
(e) 5 marks per scenario	15
(f) 1 mark per point, 2 marks recommendations (max 9 marks)	9
	<hr/> 100 <hr/>