
Answers

1 (a) **Relevant costs**

The following principles should be applied when identifying costs that are relevant to a period.

Relevant costs are future costs

A relevant cost is a future cost arising as a direct consequence of a decision. A cost which has been incurred in the past is therefore totally irrelevant to any decision that is being made now. Such past costs are called ‘sunk costs’.

In Paradise Ltd’s project, the £1.5 million spent preparing the land for construction is a sunk cost, as is the £2 million down-payment to construction firms. These costs should therefore be excluded when calculating the net present value of the project.

Relevant costs are cash flows

Only those future costs which are in the form of cash should be included. This is because relevant costing works on the assumption that profits earn cash.

Therefore, costs which do not reflect cash spending should be ignored for the purpose of decision-making. This means that the depreciation charges of £1.5 million should be ignored in the decision for Paradise Ltd.

Relevant costs are incremental costs

A relevant cost is the increase in costs which results from making a particular decision. Any costs or benefits arising as a result of a past decision should be ignored.

Opportunity costs

An opportunity cost is the value of a benefit foregone as a result of choosing a particular course of action. Such a cost will always be a relevant cost.

Other non-relevant costs

Certain other costs will be irrelevant to decision-making, such as ‘committed costs’. A committed cost is a future cash outflow that will be incurred anyway, regardless of what decision will now be taken. The £3 million restaurant costs represent such committed costs, and these will therefore be ignored for the decision-making process.

The interest costs of £2.5 million per annum are also ignored. This is not because they do not meet the above criteria, but because they are taken into account in the discounting process. If these costs were included as relevant they would be double counted.

(b) **Net present value**

	Years						
	0	1	2	3	4	5	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Net sale proceeds foregone	(4,980)						(4,980)
Hotel building costs		(35,000)					(35,000)
Lodge building costs	(4,000)	(20,000)					(24,000)
Furnishings		(3,200)					(3,200)
Swimming pools		(480)					(480)
Restaurants		(12,000)					(12,000)
Shops		(4,000)					(4,000)
Annual overheads – hotel			(2,000)	(2,000)	(2,000)	(2,000)	(8,000)
Annual revenues – hotel			13,000	13,000	13,000	13,000	52,000
Rentals – lodges			15,600	15,600	15,600	15,600	62,400
Lodge overheads			(280)	(280)	(280)	(280)	(1,120)
Restaurant/shop income			4,730	4,730	4,730	4,730	18,920
Net relevant costs	(8,980)	(74,680)	31,050	31,050	31,050	31,050	40,540
10% discount factors	1.000	0.909	0.826	0.751	0.683	0.621	
Discounted cash flow	(8,980)	(67,884)	25,647	23,319	21,207	19,282	12,591

Since the net present value of the project is positive at £12,591 million, the company should proceed with it.

(Note: An alternative NPV calculation is shown overleaf, using an annuity factor. Where workings are shown clearly for the ‘net cash flow’ figures, full marks should be awarded for this method.)

Alternative presentation for 1(b)			
Years	Net cash flow £'000	DF/AF	Present value £'000
0	(8,980)	1.000	(8,980)
1	(74,680)	0.909	(67,884)
2-5**	31,050	2.881	89,455
			<u>12,591</u>

**Annuity factor for T2 – 5 = 0.826 + 0.751 + 0.683 + 0.621.

(c) Internal rate of return

$$IRR = A + \left[\frac{a}{a-b} \times (B-A) \right]$$

Where A is the lower rate and B is the higher rate; a is the NPV at the lower rate and b is the NPV at the higher rate.
(In this case, 20% has been used as the higher rate.)

$$10\% + \frac{12.591}{16.805} \times (10\%)$$

$$= \underline{17\%}$$

Working

	Years						Total
	0	1	2	3	4	5	£'000
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Net relevant costs	(8,980)	(74,680)	31,050	31,050	31,050	31,050	40,540
20% discount factors	1.000	0.833	0.694	0.579	0.482	0.402	
Discounted cash flow	<u>(8,980)</u>	<u>(62,208)</u>	<u>21,549</u>	<u>17,978</u>	<u>14,966</u>	<u>12,482</u>	<u>(4,214)</u>

Net present value at 20% = – £4.214 million

(d) Advantages and disadvantages of IRR

Advantages include:

1. It takes into account the time value of money, which is a good basis for decision-making.
2. Results are expressed as a simple percentage, and are more easily understood than some other methods.
3. It indicates how sensitive decisions are to a change in interest rates.

Disadvantages include:

1. Projects with unconventional cash flows can have either negative or multiple IRRs. This can be confusing to the user.
2. IRR can be confused with ARR or ROCE, since all methods give answers in percentage terms. Hence, a cash-based method can be confused with a profit-based method.
3. It may give conflicting recommendations to NPV.
4. Some managers are unfamiliar with the IRR method.

Note: Only 3 advantages and 3 disadvantages were required.

(e) The stages for project appraisal

(i) Initial investigation of the proposal

Firstly, a decision must be made as to whether the project is technically feasible and commercially viable. This involves assessing the risks and deciding whether the project is in line with the company's long-term strategic objectives.

(ii) Detailed evaluation

A detailed investigation will take place in order to examine the projected cash flows of the project. Sensitivity analysis is performed and sources of finance will be considered.

(iii) Authorisation

For significant projects, authorisation must be sought from the company's senior management and Board of Directors. This will only take place once such persons are satisfied that a detailed evaluation has been carried out, that the project will contribute to profitability and that the project is consistent with the company strategy.

(iv) Implementation

At this stage, responsibility for the project is assigned to a project manager or other responsible person. The resources will be made available for implementation and specific targets will be set.

(v) Project monitoring

Now the project has started, progress must be monitored and senior management must be kept informed of progress. Costs and benefits may have to be re-assessed if unforeseen events occur.

(vi) Post-completion audit

At the end of the project, an audit will be carried out so that lessons can be learned to help future project planning.

2 (a) Cash budget for the six months ended 31 December 2004

	July £'000	August £'000	September £'000	October £'000	November £'000	December £'000	Total
Cash inflows							
Sales receipts	173	255	271	289	310	323	1,621
	<u>173</u>	<u>255</u>	<u>271</u>	<u>289</u>	<u>310</u>	<u>323</u>	<u>1,621</u>
Cash outflows							
Payments to suppliers	60	125	133	141	153	160	772
Admin. expenses	55	60	62	65	68	70	380
Delivery costs	3	3	3	3	3	3	18
Packaging	1	1	2	3	3	3	13
Misc. expenses	6	6	7	7	8	8	42
Loan repayments	50				50		100
Overdraft interest	2	2	1				5
	<u>177</u>	<u>197</u>	<u>208</u>	<u>219</u>	<u>285</u>	<u>244</u>	<u>1,330</u>
Net cash flow	(4)	58	63	70	25	79	291
Opening balance	(155)	(159)	(101)	(38)	32	57	(155)
Closing balance	<u>(159)</u>	<u>(101)</u>	<u>(38)</u>	<u>32</u>	<u>57</u>	<u>136</u>	<u>136</u>

Workings

1. Sales receipts

	July £'000	August £'000	September £'000	October £'000	November £'000	December £'000
Cash: 30% x £250	75					
Credit: 70% x £140	98					
	<u>173</u>					
Cash: 30% x £266		80				
Credit: 70% x £250		175				
		<u>255</u>				
Cash: 30% x £282			85			
Credit: 70% x £266			186			
			<u>271</u>			
Cash: 30% x £306				92		
Credit: 70% x £282				197		
				<u>289</u>		
Cash: 30% x £320					96	
Credit: 70% x £306					214	
					<u>310</u>	
Cash: 30% x £330						99
Credit: 70% x £320						224
						<u>323</u>

(b) Budgeted Profit and Loss Account for the six months ending 31 December 2004

	£'000	£'000
Sales (w.1)		1,754
Less cost of sales (w.2)		<u>(976)</u>
Gross profit		778
Delivery costs (w.3)	18	
Administration expenses (w.4)	380	
Miscellaneous expenses (w.5)	42	
Interest (w.6)	<u>3</u>	
		<u>(443)</u>
Net profit		<u>335</u>

Workings

	£'000
1. Sales:	
(£250,000 + £266,000 + £282,000 + £306,000 + £320,000 + £330,000)	<u>1,754</u>
2. Cost of sales	£'000
Opening stock	250
Purchases	877
(£125,000 + £133,000 + £141,000 + £153,000 + £160,000 + £165,000)	
Closing stock	<u>(170)</u>
	957
Packaging	19
(£2,000 + £3,000 + £3,000 + £3,000 + £4,000 + £4,000)	
Total	<u>976</u>
	£'000
3. Delivery costs	
(£3,000 + £3,000 + £3,000 + £3,000 + £3,000 + £3,000)	<u>18</u>
Note: Delivery costs could have been included in COS.	
4. Administration expenses	
(£55,000 + £60,000 + £62,000 + £65,000 + £68,000 + £70,000)	<u>380</u>
5. Miscellaneous expenses	
(£6,000 + £6,000 + £7,000 + £7,000 + £8,000 + £8,000)	<u>42</u>
6. Interest (£2,000 + £1,000)	<u>3</u>

3 (a) Definitions

'Over-capitalisation' means that there is an excessive amount of the business' money invested in assets.

'Overtrading' means that a business' volume of trade is too large given the level of long-term capital at its disposal.

(b) Symptoms of Overtrading

The symptoms of overtrading are as follows:

- A rapid increase in turnover.
- A rapid increase in the volume of current assets, and sometimes fixed assets.
- A rapid increase in trade creditors and the bank overdraft, with very little increase in equity capital (if any).
- A significant reduction in liquidity ratios and an increase in debt ratios.

Conclusion for Rant Ltd

The first two of these symptoms are present for Rant Ltd, as turnover has increased by 250% and fixed assets have increased by 75%.

In addition, the bank overdraft limit has been exceeded on five occasions, suggesting that there has been a rapid increase in bank borrowing. We are also told that current shareholders cannot afford further shares at present, nor do they want new shares to be issued to new shareholders, so the implication is that there has been no injection of additional equity finance recently.

Finally, whilst we cannot calculate debt and liquidity ratios from the information, we can deduce, from the information given, that they will have increased and decreased respectively.

We can therefore conclude that Rant Ltd is overtrading.

(c) Stock costs

The four main stock costs are as follows:

Holding costs

The cost of holding stocks includes the following:

- Finance cost, since capital is tied up in stocks
- Warehouse and handling costs
- Deterioration costs
- Obsolescence costs
- Insurance costs
- Pilferage costs.

Ordering costs

There will be costs for Rant Ltd when placing orders with manufacturers. Such costs will include delivery costs, and also the administrative costs involved in placing order (staff costs, telephone charges, etc.)

Shortage costs

These may include:

- Loss of a sale, and the consequent loss of contribution that would have been earned from that sale.
- Additional costs involved in making emergency orders for goods.
- The costs of lost production, when stock-outs occur and production lines grind to a halt. Staff will still have to be paid, even if they have no work to do.

Stock costs

The actual cost of the raw materials from the manufacturers (or goods for resale from the wholesalers).

(d) Rationale and assumptions

The economic order quantity (EOQ) model is used to decide the optimum order size for stocks. This then minimises the total of ordering costs and stockholding costs.

Assumptions

It is based on the following assumptions:

- demand is constant
- the lead time is constant or zero (suppliers are reliable)
- purchase costs per unit are constant (i.e. no bulk discounts)

(e) EOQ calculation

The EOQ for Rant Ltd is calculated as follows:

$$\begin{aligned} & \sqrt{\frac{2 \text{ Co D}}{\text{Ch}}} \\ = & \sqrt{\frac{2 \times \text{£}150 \times 150,000}{\text{£}15}} \\ = & \sqrt{3,000,000} \\ = & 1,732. \end{aligned}$$

The number of orders to be placed will therefore be $150,000/1,732$

$$= 86 \text{ per annum.}$$

4 (a) Debt vs equity

Factors that should be taken into account when deciding the mix of debt and equity finance are as follows:

(i) Cost

The higher the cost of funding, the lower the company's profit. Equity funding is more expensive as an equity investor is subject to both business and finance risk. The investor will therefore demand a higher return for his increased level of risk.

(ii) Taxation

The tax treatment of the cost of financing needs to be taken into account. Interest on debt is tax deductible, whereas if equity finance is raised, dividends paid to shareholders will not be tax deductible. This fact, combined with the lower risk of debt financing, means that debt tends to be cheaper.

(iii) Control of the business

If finance is raised through the issue of shares to new shareholders, those shareholders become joint owners of the business. The percentage of shares held by existing shareholders will therefore decrease. As this percentage decreases, so does the individual shareholders' voting power.

When deciding on the number of shares to be issued, the current shareholders will probably want to retain their voting control. This should therefore be considered when deciding the mix of debt and equity.

(iv) The effect on gearing

Gearing measures the amount of debt compared to the amount of equity. If too much debt is issued, Clean Lens Ltd's gearing ratio will increase. Finance providers will then see the company as a high-risk investment, and will expect higher returns to compensate for their increased risk. This may lead to unwillingness, on the part of finance providers, to lend money to Clean Lens Ltd at all.

(v) Current level of debt and maturity of existing borrowings

A significant difference between debt and equity finance is that debt has to be repaid, but equity does not. If Clean Lens Ltd already has substantial debt finance, then they will already be making repayments, or they will be committed to making repayments in the future.

Therefore, when considering the mix of further debt and equity finance, they should ensure that they do not over-commit themselves to future loan repayments.

(vi) Availability of finance

As Clean Lens Ltd is a private limited company, the availability of equity financiers may be limited. This will, to a certain extent, dictate the mix of debt and equity finance.

NOTE: Only five factors were required.

(b) Venture capital

Factors that a venture capital organisation will take into account are as follows:

(i) Level of expertise of the company's management

Venture capitalists will believe that the success of Clean Lens Ltd is highly dependent on the quality of the company's management team. They will expect Clean Lens Ltd to have a skilled team, who are experienced managers. Management will also be required to show a high level of commitment to the project, and the company. As the owners of the business are all involved in the running of the company, this should be proof of their commitment.

(ii) Level of expertise in production

The venture capitalists will seek assurance that the company has the necessary technical ability to be able to develop and produce the new contact lenses. They will want evidence that the management and staff are technically competent.

(iii) The nature of Clean Lens Ltd's new product

The venture capitalists will consider whether the development and production of the new lens is technically feasible. They will employ experts in the field to examine the idea and assess whether the new lens will actually provide revolutionary comfort.

(iv) The market and competition

They will seek assurance that there is actually a market for a new contact lens, as there are already so many different products on the market. They will ask to see any market research that the company has carried out. The venture capitalists will also look at the threat posed by new entrants in the contact lens market, and current rival producers.

(v) Future prospects

Since the risk involved in investing capital in the company is fairly high, the venture capitalists will seek to ensure that the prospects for future profits compensate for the risk. They will therefore want to see a detailed business plan setting out the future business strategy. Clean Lens Ltd has already prepared profit projections showing a very good margin on the product.

(vi) Risk borne by current owners of Clean Lens Ltd

The venture capitalists will expect to see that the current owners bear a high degree of risk. This will give them assurance that the owners have the sufficient level of commitment to the company, as they themselves will have a lot to lose should the company fail. As there are only five shareholders, it is likely that each of them has invested a significant amount of money.

(vii) Exit route

The venture capitalists will try to establish a number of exit routes. These may include a sale of shares to the public, following a flotation, a sale of shares to another business, or a sale of shares to the original owners.

(viii) Board membership

Since the venture capitalists will want to ensure that their investment is protected, they will require a place on the Board of Directors. This will enable them to have their say on all significant matters affecting the business.

NOTE: Only five factors were required.

		Marks
1	(a) Relevant cashflows	
	RC = future cash flow	1
	Not sunk costs	1
	£1.5m and £2m = sunk cost	1
	RC = form of cash	1
	Ignore depreciation	1
	RC arises as result of decision	1
	Committed cost of £3m – ignore	1
	Interest costs ignored	1
		<hr/> 8
	(b) NPV calculations	
	Opportunity cost	1
	Hotel building costs of £35k T1	1
	Lodge costs £4k T0	1
	Lodge costs £20k T1	1
	Furnishings/Swimming pools T1	1
	Restaurants T1	1
	Shops T1	1
	Annual overheads hotel T2–5	1
	Annual revenues hotel T2–5	1
	Annual rentals lodges T2–5	1
	Annual overheads lodges T2–5	1
	Restaurant and shop profits T2–5	1
	Net relevant cost totals	1
	Correct 10% DFs	1
	Correct discounted CFs	1
	Correct conclusion	1
		<hr/> 16
	(c) IRR calculation	
	IRR calculation	2
	NPV calculations	2
		<hr/> 4
	(d) IRR ads and disads	
	Each advantage	1
	Each disadvantage	1
		<hr/> 6
	(e) Six stages	
	Each stage	1
	Total	6
	Total marks available	<hr/> 40 <hr/>

		Marks
2	(a) Cash flow forecast	
	Sales receipts	3
	Purchases	1
	Admin expenses	1
	Delivery costs	1
	Packaging	1
	Miscellaneous expenses	1
	Loan repayments	1
	Overdraft interest	1
	Net cash flow	1
	Opening balance	1
	Closing balance	1
		<hr/> 13
	(b) Profit and loss account	
	Sales	1
	COS	3
	Admin. and misc. expenses	1
	Recalculating interest	1
	Deriving net profit	1
		<hr/> 7
	Total marks available	20
		<hr/>
3	(a) Definition	
	Each definition	1
		<hr/> 2
	(b) Overtrading	
	Symptoms	2
	Conclusion and reasons	4
		<hr/> 6
	(c) Stock costs	
	Each cost explained	1
		<hr/> 4
	(d) EOQ model	
	Explanation of model	1
	Each assumption	1
		<hr/> 4
	(e) Calculations	
	EOQ calculation	3
	Number of orders	1
		<hr/> 4
	Total marks available	20
		<hr/>
4	(a) Debt and equity	
	For each factor explained	2
		<hr/> 10
	(b) Venture capital	
	For each factor identified and discussed	2
		<hr/> 10
	Total marks available	20
		<hr/>