Answers

Section C

Kandy Co

(a) (i) Bulk purchase discount

Current policy:
Annual ordering cost = 18,000/1,000 x $75 = $1,350 per year

Buffer inventory = 18,000 x 2/360 = 100 units

Average inventory holding = (1,000/2) + 100 = 600 units

Annual holding cost = 600 x $30 x 0·09 = $1,620 per year

Purchase cost = 18,000 x $30 = $540,000 per year

Total cost = $1,350 + $1,620 + $540,000 = $542,970 per year

Bulk purchase discount:
Purchase price = $30 x (1 – 0·015) = $29·55 per unit

Order cost = $75 + $25 = $100 per order

Annual ordering cost = 18,000/1,500 x $100 = $1,200 per year

Average inventory holding = (1,500/2) + 100 = 850 units

Annual holding cost = 850 x $29·55 x 0·10 = $2,512 per year

Purchase cost = 18,000 x $29·55 = $531,900 per year

Total cost = $1,200 + $2,512 + $531,900 = $535,612 per year

(ii) Early settlement discount

Current situation:
30-day receivables = $45m x 0·6 x 30/360 = $2,250,000

40-day receivables = $45m x 0·4 x 40/360 = $2,000,000

Total receivables = $4,250,000

Current finance cost = $4,250,000 x 0·07 = $297,500

After introduction of discount:
10-day trade receivables = $45m x 0·5 x 10/360 = $625,000

30-day trade receivables = $45m x 0·2 x 30/360 = $750,000

40-day trade receivables = $45m x 0·3 x 40/360 = $1,500,000

Total receivables = $2,875,000

Finance cost = $2,875,000 x 0·07 = $201,250 per year

Discount cost = $45m x 0·005 x 0·5 = $112,500 per year

Total cost = $201,250 + $112,500 = $313,750 per year

(iii) Comment on financial acceptability

The bulk purchase discount is financially acceptable as it will reduce gimble stocking costs by $7,358 per year ($542,970 – $535,612).

The early settlement discount is not financially acceptable as it will increase costs by $16,250 ($313,750 – $297,500) per year.

(b) The two main objectives of working capital management are to ensure profitability (generating return for investors) while at the same time ensuring liquidity (meeting its obligations when they fall due). In other words, it is about getting the right balance between current assets and current liabilities.

Having high levels of current assets can help in meeting short-term liabilities, particularly if there is a high cash balance. Good liquidity is important as it is cash which settles the liabilities, not profit. Profitable companies can still fail due to poor liquidity in the short term.

However, the problem with high levels of current assets is that they are not profitable. Cash, for example, does not generate a high return, if indeed any return at all. Holding inventory is similarly not generating any return for the company, only the sale of inventory generates the profitability. Carrying lower levels of current assets with more cash invested in long-term, non-current assets could

generate higher returns for the company but would impact its ability to settle its liabilities. Consequently, there is a conflict, or trade off, between profitability and liquidity.

The bulk purchase discount Kandy Co is being offered is a good example of this conflict. By accepting the discount and buying in larger quantities, the cost is reduced (as demonstrated in a(i)), increasing profitability. But this will mean less cash in the bank due to higher levels of inventory holding. This lower level of cash will affect Kandy Co's ability to pay its current liabilities, thus liquidity will be affected.

This conflict between the two objectives is inevitable and there is no correct answer as to the level of current assets and liabilities to hold. It is for every business to determine itself.

(c) The cash operating cycle refers to the average length of time it takes for a business to generate cash having paid for an item of inventory. In other words, having paid for the inventory, the cash operating cycle is the length of time it remains in inventory before being sold and then how long until the customer pays for it and cash is returned to the bank account.

It is calculated by adding the average inventory holding period and the average trade receivables collection period and then subtracting the average trade payables payment period.

The cash operating cycle is effectively measuring the business' liquidity in terms of cash generation – a long cash operating cycle would indicate potential liquidity problems as the business is without cash for a long time.

The relationship of the cash operating cycle with the investment in working capital is that higher levels of investment will generally increase the cash operating cycle. High inventory levels will usually mean longer inventory holding periods, increasing the cash operating cycle. High trade receivables are usually due to longer collection periods for collecting in debt, again increasing the cycle. Finally, paying suppliers very quickly will increase the investment in working capital due to low levels of trade payables, but this will again increase the cash cycle.

Hawker Co

(a) Option 1 Borrow and buy

	year 0 $	year 1 $	year 2 $	year 3 $	year 4 $	year 5 $
Purchase price	(34,000)					
Residual value					14,000	
TAD benefits			1,000	1,000	1,000	1,000
Emissions tax		(600)	(600)	(600)	(600)	
Emissions tax benefits			120	120	120	120
Net cash flow	(34,000)	(600)	520	520	14,520	1,120
Discount at 4%	1·000	0·962	0·925	0·889	0·855	0·822
Present value	(34,000)	(577)	481	462	12,412	921
Present value cost of borrowing	(20,302)					

Option 2 Lease

	year 0 $	year 1 $	year 2 $	year 3 $	year 4 $	year 5 $
Lease payment	(6,000)	(6,000)	(6,000)	(6,000)		
Lease payment tax benefits			1,200	1,200	1,200	1,200
Net cash flow	(6,000)	(6,000)	(4,800)	(4,800)	1,200	1,200
Discount at 4%	1·000	0·962	0·925	0·889	0·855	0·822
Present value	(6,000)	(5,769)	(4,438)	(4,267)	1,026	986
Present value cost of leasing	(18,462)					

Hawker Co should lease the new vehicle because this option has the lower present value cost.

(b) Reasons, other than after-tax cost, for leasing

- Leasing can offer more flexibility than borrowing and buying. Lease periods can be for less than an asset's useful life, or break clauses may be offered by the lessor. If technology changes and the asset becomes out of date before the end of its expected life, the lessee does not have to keep on using it.
- Under the borrow and buy option, Hawker Co would carry the risk of the vehicle failing to achieve a disposal value of $14,000. If leased, this risk would be transferred to the lessor.
- The lessee may not have enough cash to pay for the vehicle and might have difficulty obtaining a bank loan. If this is the case, leasing may be the only way of getting use of the asset.

(Note: Only two reasons were required)

(c) Advantages of NPV over IRR in investment appraisal

In most simple accept or reject decisions, IRR and NPV will select the same project. However, NPV has certain advantages over IRR.

The NPV of a proposed project, if calculated at an appropriate cost of capital, is equal to the increase in shareholder wealth which the project offers. In this way, NPV is directly linked to the assumed objective of the company, the maximisation of shareholder wealth. IRR calculates the rate of return on projects, and although this can show the attractiveness of the project to shareholders, it does not measure the absolute increase in wealth which the project offers.

NPV looks at absolute increases in wealth and thus can be used to compare projects of different sizes. IRR looks at relative rates of return and in doing so ignores the size of the investment projects.

NPV is not subject to the technical difficulties which limit the usefulness of the IRR method.

First, in situations involving multiple reversals in project cash flows, it is possible that the IRR method may produce multiple IRRs (that is, there can be more than one interest rate which would produce an NPV of zero). If decision makers are aware of the existence of multiple IRRs, it is still possible for them to make the correct accept or reject decision using IRR, but if unaware, they could make the wrong decision.

Second, in situations of mutually exclusive projects, it is possible that the IRR method will (incorrectly) rank projects in a different order to the NPV method. This is due to the inbuilt reinvestment assumption of the IRR method. The IRR method assumes that any net cash inflows generated during the life of the project will be reinvested at the project's IRR. NPV, on the other hand, assumes a reinvestment rate equal to the cost of capital. Generally NPV's assumed reinvestment rate is more realistic and hence it ranks projects correctly.

Finally, NPV can be used in situations where the cost of capital changes from year to year. Although IRR can be calculated in these circumstances, it can be difficult to make accept or reject decisions as it is difficult to know which cost of capital to compare it with.

			Marks	*Marks*
Section C				
Kandy Co				
(a)	**(i)**	Order cost (current)	0·5	
		Average inventory (current)	1	
		Holding cost (current)	0·5	
		Purchase cost (current)	0·5	
		New purchase price/order	0·5	
		New ordering cost/order	0·5	
		Order cost (new)	0·5	
		Average inventory (new)	1	
		Holding cost (new)	0·5	
		Purchase cost (new)	0·5	
				6
	(ii)	Purchase cost (new)	1	
		Finance cost (current)	0·5	
		Trade receivables (new)	1	
		Finance cost (new)	0·5	
		Discount cost	1	
				4
	(iii)	Bulk comment	1	
		Settlement comment	1	
				2
(b)		Liquidity	1	
		Profitability	1	
		Conflict between them	2	
				4
(c)		Explanation of cycle	2	
		Link to investment	2	
				4
				20

		Marks	*Marks*
Hawker Co			
(a)	Disposal value	1	
	TAD	1	
	TAD benefits	1	
	CO_2 tax	1	
	CO_2 tax benefits	1	
	PV of borrowing	1	
	Lease payment	1	
	Tax relief thereon	1	
	PV of leasing	1	
	Decision	1	
			10
(b)	1st reason	2	
	2nd reason	2	
			4
(c)	1st advantage	2	
	2nd advantage	2	
	3rd advantage	2	
			6
			20