

2021 Prelims Paper 2 Suggested Answer Guide

1 (b)

Year	0	1	2	3	4	5	Net Present value
Initial Cost	-500 000						
Cash flow from profits (NP+Depn)		160 000+ 90 000	150 000+ 90 000	80 000+ 90 000	60 000+ 90 000	40 000+ 90 000	
Sales proceeds						50 000	
Total Cash flows	-500 000	250 000	240 000	170 000	150 000	180 000	
Disc factor	1	0.893	0.797	0.712	0.636	0.567	
Present Value	-500 000	223 250	191280	121040	95 400	102 060	233 030
	/	/	/	/	/	/	[6]

Depreciation = $(500-50)/5 = 90$

(a)

Year	
0	500 000
1	-250 000
Left to cover	250 000
2	-240 000
Left to cover	10 000
	-10 000
	0

10000/170000 x 12 = 1mth

Payback period = **2 years 1 month** ///

[3]

(c)

Buy P. /

- P's **NPV is only slightly lower** than Q's by \$6 970 [$6970/240000 = 3\%$ lower] but its **payback period is much shorter** than Q's by 8 months [8 mths/ 33mths = 24% shorter]. //
- The cost of Q is also much **higher** than P by \$100 000 but its NPV is only higher by \$6 970 and there are **opportunity cost** of the extra \$100 000 cash tied up from being invested elsewhere. /
- The earlier payback period for P means that is **less risky** to invest in P and the funds can be recovered earlier to be **reinvested** for profits. /
- Other relevant points

[5]

(d)

- Projected **amount and timing** of cash flows may not be **accurate**.
- Difficult to establish an **accurate cost** of capital
- Difficult to determine a suitable **acceptable NPV or minimum payback period**
- Impacts on business such as savings from productivity are **difficult to estimate**

Any 2

[2]

(e)

% loan	\$ loan	\$ shares	Cost of loans	Cost of shares	Cost of capital	
40%	80000	120000	9600 [80000 x 12%]	16800 [120000 x 14%]	26400	//
60%	120000	80000	21600 [120000 x 18%]	12800 [80000 x 16%]	34400	//
						[4]

2. a

	July	August	Sept		
Sales (units)	20000	26000	28000		
+ Closing stock	3900	4200	5700		
- Opening stock	(3000)	(3900)	(4200)		
Production (units)	20900	26300	29500		
	X2	X2	X2		
Purchases (units)	41800	52600	59000	/	
Purchases (\$)	209000	263000	295000	/	[5]

b September /
Shortfall = 59000 – 55000 = 4000 units /

[2]

c

To minimise storage costs, he should minimise the stock holding period. Hence he should buy the shortfall in August followed by July.

	units	workings
Shortfall	4000	
Purchase in August	(2400)	(55000-52600)
	1600	
Purchase in July	OF (1600)	

Hence he should **buy 2400 units in August and 1600 units in July.**

[2]

d

	workings	\$		
August's 2400 units	2400 units x 1 mth x \$0.50	1200	/	
July's 1600 units	1600 units x 2 mths x \$0.50	1600	/	OF
Storage costs		2800		
Purchase costs	4000 units x \$5	20000	/	OF
Total costs		22800	/	[4]

e. Costs = 4000 units x \$6 = **\$24000** OF

[2]

f. **Option 1** /

- It is **cheaper** by \$1200 (24000 - 22800). //
- Original supplier so quality is assured
However, need to consider the following
- Higher risk of loss due to stockholding (e.g. spoilage)
- Opportunity costs of cash being tied to stocks purchased before actual need and possible negative impact on cash flow

Note: for qualitative factors, always suggest some limitations of the recommended decision to give the answer more 'balance'

+2 relevant qualitative factors [2]

3

- (a) It enables management to **anticipate any deficits** so that the necessary **financial arrangements** may be made. /

It enables management to decide upon a policy for **using any cash surpluses**. /

[2]

(b) Computation of level of bank overdraft needed at end of first year

	\$	\$
<u>Projected Receipts</u>		
(1) Ordinary share capital		250 000 }
(2) Mortgage loan		60 000 } /
(4) Credit sales (100000 x 10)		1 000 000 /
		<u>1 310 000</u>
<u>Less: Projected Payments</u>		
(2) Mortgage loan repayment (60K/10)	6 000	}
(2) Interest on mortgage loan (8% x 60K x 9/12) *	3 600	} /
(3) Purchase of equipment	3600	/
(6) Operating overheads (25K x 6 + 30K x 5)	3000	/
(5) Creditors (14 x (100000x0.6) – 1x (100000x0.6)	780 000	/
		<u>1 449 600</u>
Bank (overdraft) required		<u>(139 600)</u>

[6]

*More accurate interest calculation = $(8\% \times 60K \times 6/12 + (8\% \times 54K \times 3/12) = \$3\,480$

(c)

Blue Ltd

Forecasted Income statement for the first year

	\$	\$
Sales (100 000 X 12)		1 200 000 /
Less: Cost of Goods Sold (60%)		<u>(720 000)</u>
Gross profit (40% x Sales)		480 000 /
Less: Operating Expenses (25000 x 6 + 30000 x6)	330 000	/
Interest on Mortgage loan (8% x 60000 x 9/12)	3 600	/
Depreciation on Equipment (360K/5 x 6/12)	36 000	369 600 //
Net profit		<u>110 400</u>

[6]

(d)Focus on components of working capital cycle to answer this question.

Reduce inventory held from 2 months so that cash is not tied up in inventories by ordering in small quantities or just-in-time.

Negotiate for longer repayment period with suppliers beyond 1 month or look for suppliers who can offer longer credit terms of more than 1 month

Shorten credit period to customers from 2 months so that cash is not tied up with customers.

Note: not quite appropriate to suggest improving collection from customers or make better use of credit term by suppliers because the business is new.

3 points with elaboration [6]

4

a.

Product	Aqua	Blue	Cyan	Total	
	\$	\$	\$		
Per unit					
Selling price	44	24	20		
Direct material – material X	18	6	12		
Direct labour	10	4	6		
Unit contribution margin	16	14	2		
X volume	2 000	4 000	1 000		
Contribution margin	32 000	56 000	2 000	90 000	///
Less: Fixed cost (2000x6 + 4000x4 + 1000x4)				32 000	/
Net Profit				58 000	/
					[5]
b.					
Breakeven sales (units)	= FC/ UCM				
	=(2000x6)/16				
	=750units				
Breakeven sales (\$)	=750 x 44				
	=\$33000	//			[2]
c.					
With limited material X					
Unit contribution margin	16	14	2		
Metre of material X per unit	[18/3] 6	[6/3] 2	[12/3] 4		
Contribution per metre Mat X	2.7	7	0.5		//
Rank	2	1	3		/
Material X available = 16 200 + 2 000 = 18 200m					
Allocation (metres)	[18 200 -8000] 10 200	[4 000 x 2] 8 000	-		} //
Units made	[10 200/6] 1 700	4 000	-		}
X Unit Contribution Margin	16	14			
Contribution margin	27 200	56 000		83 200	/
Less: Fixed cost				32 000	/
Net Profit				51 200	/
					[8]

d.

Product	Blue	
No of units [18 200/ 2]	9 100	/
	\$	
UCM [21 – 6 – 4]	11	
Contribution Margin [9 100x 11]	100 100	//
Less : FC	32 000	/
Net Profit	68 100	/
		[5m]

e.

Since **net profit** of \$68 100 is **higher** than that from (b) of \$51 200, **accept** the order. //

Other factors:

- It will not be able to sell to **existing customers all 3 products**, who may turn to other suppliers **permanently**.
- It will only be selling to **one** customer, which is **risky** should that customer face financial difficulties and cannot repay
- Resources will have to be **redeployed** to make Cyan and there could be **hidden costs** involved e.g. retraining of workers and adaptation of machines from other product lines to Cyan

Note: retrenchment is **not likely** to occur because the shortage is only for January.

+2 factors // [4]

f.

No as Cyan makes a **positive contribution** to the business \$2 per unit to cover fixed costs. //

- Stopping sales of Cyan **may affect sales of Aqua and Blue** if customers who buy Cyan also buy these products. Reduced product variety for customers.
- The resources used to produce Cyan **may not be easily transferable** to making Aqua and Blue. E.g. workers need to be retrained for other products, incurring costs
- Workers making Cyan may need to be **retrenched** if they can't be retrained, affecting **morale and productivity** of workers in Aqua and Blue

Note: It is wrong to switch to other products with higher margins because there is a maximum that should be produced for each product depending on the forecast sales. This is true even if there is a limited factor of production.

If there is a limited factor of production, the correct way to decide what to make is to rank them by the contribution per unit of the limited factor. (see b)

+2 factors // [4]

g

	To manufacture	To buy
Orange (10000 units)	$50+38+12 = 100$	\$115
Red(15000 units)	$92+23+9 =124$	\$108

Option	1 (Buy Both)	2 (Make both)	3 (Buy Orange, make Red)	4 (Buy Red, make Orange)	
Costs					
Buy Orange (10000 units)	$10\,000 \times 115 = 1\,150\,000$		1 150 000		
Buy Red (15000 units)	$15\,000 \times 108 = 1\,620\,000$			1 620 000	
Make Orange (10000 units)		$10\,000 \times 100 = 1\,000\,000$		1 000 000	
Make Red (15000 units)		$15\,000 \times 124 = 1\,860\,000$	1 860 000		
Less: Rental income	$12 \times 15\,000 (180\,000)$		$12 \times 4\,000 = (48\,000)$	(48 000)	
	2 590 000	2 860 000	2 962 000	2 572 000	
	/	/	/	/	

Advice:

Option 3 - Buy Red and make Orange as it is the **cheapest** option. //

Qualitative factors

- Need to consider **redeploying employees** who used to make Red and re-training costs. If **retrenched**, need to consider impact on **morale and productivity on remaining workers**
- **Quality** of Red supplied should be **comparable or superior** to that made.
- **Reliability** of supplier in ensuring **continuous supply**, in a **timely** manner according to contract terms.
- Ease of **re-starting production** if necessary.
- Less **flexibility over product customisation** if bought.

+2 factors // [8]

h)

Should not make both products as this will result in **higher costs** of \$288 000 (2860 000 – 2572000) for the company /

The amount paid to buy the equipment is a **sunk cost** /. It has already been **spent even before the company was deciding** whether to make or buy Red and Orange. It is thus **irrelevant** in making decision as it will **not differ across decisions taken and should not be considered.** /

The cost of the machine will eventually need to be written off, either through depreciation, or immediately if both products cease so it is incorrect to use it just to make it worthwhile. /

[4]