Answer to P2 Prelim 2020

1(a) Only really useful for making short term decisions as it ignores fixed cost.
Not all costs can easily be classified as either fixed or variable

1(b) Working:

	Jen	Kit	Mat
Total production and sales units	6 000	7 000	8 000
Unit costs: Selling price Raw materials @ $10 per kilo Direct labour	$ 72 30 6	$ 90 40 8	$ 136 60 10
Total fixed costs $750 000			
Contribution	36	42	66
Raw materials per unit (kg)	3	4	6
Contribution per kilo	36/3= 12	42/4= 10.5	66/6=11
Rank	1*	3*	2*

Option 1

	Units	Kilos
Jen	6 000 x 3 =	18 000
Mat	8 000 x 6 =	48 000
Kit	2 000 x 4 =	8 000
		74 000

	$
6 000 x $36 =	216 000
(8 000 x $66 =	528 000
2 000 x $42 =	84 000
CM	828 000
Fixed costs	(750 000) *
Profit	78 000

Option 2

	Units	Kilos
Jen	5 000 x 3 =	15 000
Kit	5 000 x 4 =	20 000
Mat	5 000 x 6 =	30 000
		65 000
Material remaining		9 000
		74 000

The product which has the highest contribution margin per limiting factor is Jen. Therefore the remaining materials should be used first to make Jen. 5000 units have already been ,made and the maximum required is 6 000. Therefore a further 1 000 units of Jen should be made. This will use 3 000 kilos of material

The final balance of materials (6 000 kilos) will then be used to make 1 000 unit of Mat the product yielding the next highest contribution margin per kilo of material.

Total profit under this option is:

		Units	Kilos		$
Jen		6 000 x 3 =	18 000		6 000 x $36 = 216 000
Kit		5 000 x 4 =	20 000		5 000 x $42 = 210 000
Mat		6 000 x 6 =	36 000	2m	6 000 x $66 = 396 000
			74 000		CM 822 000
					Fixed costs (750 000) *
					Profit 72 000

1 (c) **Explanation:** The two profit figures show only a small difference between them , with the option to meet the 5 000 sales requirement giving the lower profit . If this option is chosen, then all customers will be happy and Samuel should keep them for the future.

However, Samuel needs to determine whether or not the shortage of materials will be permanent.

If it is, then he will need to talk to his customers about their future requirement. He will also need to consider an alternative source of material.

Decision: In light of this, if the problem is a short-term one, then the second option should be selected, as all customers will be happy.

2 (a) Computation of total budgeted overhead cost

	Base	Machining	Assembly	Maintenance	Canteen	
		$	$	$	$	
Indirect expenses		120 100	80 050	40 000	15 000	
Reallocation of canteen costs	No, of employees	3 000	9 000	3 000	(15 000)	
				43 000	-	
Reallocation of Maintenance costs	No. of Maintenance Requisitions	34 400	8 600	(43 000)		
		157 500	97 650	-		

(b)

Department	Budgeted Overhead Cost	Activity Level Selected	Budgeted Absorption Rate
Machining	$157 500	45 000 machine hours	$3.50 per machine hour (157 500/45 000)
Assembly	$97 650	15 500 direct labour hours	$6.30 per direct labour hour (97 650/15 500)

(c)Computation of over / (under) absorbed overheads

Department	Machining	Assembly	
	$	$	
Overheads absorbed	155 050	102 060	
	($3.5 X 44300	($6.3 X 16200	
Actual overheads	150 000	105 000	
Over/(under) absorbed	5 050	(2 940)	

(d)

Possible reasons: (any 1 reason + 1m)

- Unexpected changes in factory overhead items. Some examples are changes in insurance rates, indirect labour and indirect material. Budgeted overheads for Machining is $157 500 while actual is $150 000 which resulted in over absorbed OH for Machining while budgeted OH for Assembly was $97650 but actual is $105 000 leading to an under absorbed OH.
- Changes in activity levels. The actual number of units produced (compared to the estimated or budget) is either too high or too low. Budgeted activity level for Machining is 45 000 machine hours but actual is only 44300h which led to an under absorbed overhead. But the impact is offset by the impact of higher budgeted overhead costs. Budgeted activity level for Assembly is 15 500DLH while actual is 16200DLH which should result in an over absorbed OH. Again impact of this is offset by the larger decrease in OH costs as compared to the budgeted. (see above)

(e)

Effect of under/over applied manufacturing on financial statements

	Current Assets Inventory (unsold)	**Cost of sales (when sold)**	**Shareholders' equity Net profit (when sold)**
Under applied	Understated	Understated	Overstated
Over applied	Overstated	Overstated	Understated

3 (a) Allows for future planning
Identifies areas where corrective action has to be taken
For full answer, please refer to 2020 A level P2

3 (b) Lex
Sales Budget

	January Units	February Units	March Units
Opening inventory	50	40	60
Purchases	450	490	460
Closing inventory	(40)	(60)	(30)
Sales	460 (1OF)	470 (1OF)	490 (1OF)
Sales Value ($)	460x$15=$6900	470x$15=$7050	490x$15=$7350

3 (c) Lex
Cash Budget

	January $	February $	March $	
From customers	8 000	6 900	7 050	
Payments:				
To suppliers	3 000	4 500	4 900	
Monthly expenses	2 000	2 000	2 000	
~~Director's~~ dividends	5 000	5 000	5 000	
	10 000	11 500	11 900	
Opening balance	(5 000)	(7 000)	(11 600)	
Surplus/(Deficit)	(2 000)	(4 600)	(4 850)	
Closing balance	(7 000)	(11 600)	(16 450)	

3 (d)

Lex's business

Budgeted Income Statement for 3 months ended March 2020

	$
Sales revenue	21 300
Less: Cost of sales	(14 200)
Gross profit	7 100
Less: Expenses	(6 000)
Net profit	1 100

Workings:

	$	$
Sales revenue (1 420 x $15)		21 300
Opening inventory	500	
Purchases (1 400 x $10)	14 000	
	14 500	
Closing inventory (30 x $10)	300	14 200
Gross profit		7 100
Monthly expenses ($2000 x3)		6 000
Net profit		1 100

3(e)(i) Lex's business is making a profit but her dividend payouts are greater than the profit the Business is making. Dividend is the distribution of profit which is an outflow of cash and does not impact net profit.

3(e)(ii) There are several actions Lex could take to reduce her bank overdraft.

1. The most obvious thing is for Lex to reduce her monthly dividend payouts. However, this may not be possible if shareholders' demand that level of dividends.
2. She could increase the selling price of her product. However, this may depend On her competitors and their pricing policy. . Lex could also look for a cheaper supplier. However, this may not be possible in the short term and issues of quality and regularity of supply will need to be considered.
3. Lex could also reduce the monthly expenses of the business . However this may be fixed and impossible to change in the short term.
4. Finally, Lex could take up a long term loan but she must be prepared to face an increase in interests payments each month, and at the end of the maturity period have sufficient funds to repay back the loan.

Q4. *Net present value is the sum of the discounted net cash flows arising*

a) Explain the term 'capital investment'. Support your answer using an example. [3]
Capital investment refers to expenditure on long-term/non-current assets that are expected to benefit the business over several years and would require equity or loan financing. Example – purchase of the equipment to replace the old one.

b) Explain what is meant by the term 'weighted average cost of capital'. [3]
*Average rate of return the company will pay to those who have provided finance eg shareholders and long-term lenders to purchase **new assets** (contextualised) for the company.*

c) Explain the difference between payback and net present value in relation to investment appraisal. [6]
*Payback is defined as the **time period it takes** for an investment to generate sufficient net cash income **to recover its initial capital outlay/investment in full from an investment.***

Net present value is the sum of the discounted net cash flows arising from an investment.

d) (i) Payback period = 2 years and 7 months (must be rounded up for full marks)

Payback period

$100 000 – $(20 000 + 40 000) **(1)** = $40 000 **(1)**

$\frac{\$40000}{\$75000}$ × 12 (**1** for whole formula) = 6.4 months **(1OF)**

Therefore the payback period is 2 years and 6.4 months = 2 years and 7 months **(1OF)**
Must be rounded up for mark

(ii)Net present value = $48, 350 (must deduct the original capital investment of $10 000)

Net present value

Year	Cost $	Annual savings $	Discount Factor	Discounted Net cash flow $
0	(100 000)		1.000	(100 000)
1		20 000	0.893	17 860
2		40 000	0.797	31 880
3		75 000	0.712	53 400
4		80 000	0.636	50 880
5		(10 000)	0.567	(5 670)
Net present value **(1)**				48 350

e) Discuss the non-financial factors ….should take into account when deciding whether or not to buy the new equipment.

a. To make some employees redundant or redeploy them may demotivate them and affect the productivity (loyal workforce)
b. May need to retrain new workers, affecting quality of products. (If demotivated workers decide to leave)
c. Need to evaluate the reliability of the machine, including researching or site visit of another user
d. Look at Training requirements to use the new machine, especially required skills of workers to maximise operational efficiency
e. To examine the reasons for the current material wastage
f. Essential that final decision is based on both financial and non-financial factors

f) Discuss the limitations of relying on the quantitative information prepared for the purchase of the new equipment.

a. Need to challenge the accuracy of the forecasts of annual savings. If these forecasts are incorrect then the whole evaluation process is flawed.
b. Consider whether the discount factor of 12% is acceptable as the cost of capital with the finance required. May need to be higher or lower, depending on the financing options and choices made and their impact on the company's cost of capital.
c. Targets set by the company for NPV and payback period may render the computed NPV and payback period unacceptable to the company
d. The negative cash flow in final period is ignored when calculating payback though it has impact on the NPV calculation

g) Advise the directors which equipment they should purchase. Justify your answer.

a. No consideration whether or not a lesser amount of money spent on repairing or overhauling the equipment will eliminate the need to replace it. Such action will reduce any possible impact on the workforce.
b. Evaluation on the new $100 000 machine appears to have a positive result, though subject to the earlier discussion regarding financial factors. (+ve NPV, shorter PB period)
c. The alternative equipment has a longer payback period but a higher NPV. Directors may place more weight on the higher NPV and thus opt for this equipment. However, it does cost more and hence need to consider availability of additional funds. This data is not substantiated and may need further investigation.

In conclusion, it is likely the personal preference of the directors to opt for higher NPV of second machine or shorter payback of the first machine, couples with the availability of funds.

Need to discuss two sides + decision.