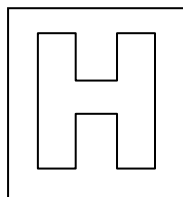


Candidate Name: _____

Class Adm No

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2023 Preliminary Examination

Pre-University 3

PRINCIPLES OF ACCOUNTING

9593/2

Paper 2

12 September 2023

3 hours

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional paper, ask the invigilator for a continuation booklet.

Section A

Answer **all** questions.

Section B

Answer **all** questions.

Start each answer on a new page.

You may use a calculator.

All calculations must be shown adjacent to the answer.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **8** printed pages.

[Turn over

Section A

Answer **all** questions in this section.

- 1 Magnet Ltd, a relatively young business, plans to sell gaming puzzles at a standard selling price of \$16 per unit but to encourage sales, the selling price will be reduced to 20% off the standard selling price for the month of September when the product will be launched.

The budgeted unit sales for the first 6 months are as follows:

Year 2023		
Months	SP	Sales Forecast (in units)
September	\$12.80	50 000
October	\$16	30 000
November		25 000
December		28 000

Year 2024	
January	32 000
February	30 000

Estimated production costs per unit of product are as follows:

Direct materials (2 units @ \$1.50)	\$3.00
Direct labour (3 hours @ \$2 per hour)	\$6.00
Selling expenses	\$1.00

Additional information

- 1 90% of sales are on credit and credit customers is expected to pay in full, 1 month after sale. Cash customers are allowed a discount of 10%.
- 2 Production began in August. Monthly production will be scheduled so that the finished goods inventory at the end of any month is sufficient to meet the forecast sales target for the following one and a half months.
- 3 The raw materials needed for production will be purchased so that the closing inventory of raw materials at the end of any month are sufficient to meet the production requirements of the next month.
- 4 If more than 60 000 units of raw materials are purchased in a month, the raw materials supplier has agreed to give a special discount of 20% off the usual price of \$1.50 for each additional unit purchased.
- 5 The supplier of the raw materials has agreed to give half-month credit terms, that is, purchases made in September will be paid in the middle of October.

- 6 All other expenses are paid as incurred. Fixed production expenses for the year including annual depreciation of \$48 000, amounted to \$480 000. The fixed expenses are incurred uniformly throughout the year.
- 7 The firm bought non- current assets costing \$50 000 in August 2023, to be paid in November 2024.
- 8 At the end of August 2023, there is a bank balance of \$200 000.

REQUIRED

- (a) A production budget in units, on a monthly basis for the three months ending 30 November 2023. [3]
- (b) A raw materials purchase cost budget, on a monthly basis, for the three months ending 30 November 2023. [4]
- (c) A month- by- month cash budget for the three months ending 30 November 2023. [9]
- (d) Budgets provide a useful function to motivate managers. Discuss. [4]

[Total: 20]

[Turn over

- 2 Vika Limited has been in operation for many years. It makes a popular type of chair called Saton.

The monthly budget for Saton is as follows.

Sales are 6 000 units with a selling price of \$26 per unit.

Each unit requires 2.4 kilos of raw material costing \$3 per kilo.

Each unit requires 1.5 hours of direct labour time costing \$7 an hour.

Each unit requires \$2 of variable overhead.

Fixed overheads is \$2 per unit.

Early in 2023 a new supplier entered the market, selling the required raw material at \$1.80 per kilo. In April, Vika Limited bought all its raw material from this new supplier. Each unit of Saton required 2.6 kilos.

Labour took 40% longer than usual to produce each unit. Average wage rate rose to \$7.80 an hour. Variable overheads increased by 10% per unit.

Vika Limited managed to produce and sell 5 000 units. The selling price rose by \$0.50 per unit.

Actual fixed overheads incurred was \$9 000.

REQUIRED

- (a) Prepare a flexible budgeted income statement for the month of April 2023. [4]
- (b) Explain **two** possible reasons why the actual fixed overheads are different to the budgeted fixed overheads. [4]
- (c) Calculate the following variances for April 2023:
- (i) Sales price
 - (ii) Direct materials usage
 - (iii) Direct materials price
 - (iv) Direct labour efficiency
 - (iii) Direct labour rate [5]
- (d) Suggest how the direct material price variance could be linked to the direct material usage variance. [1]
- (e) Discuss **two** components of the flexible budgeted income statement that Vika Ltd should focus on to improve future net profit. [6]

[Total: 20]

- 3 TriStar Limited is a traditional company that has a loyal workforce. It is currently considering installing a machine to automate part of the process. The new machine will cost \$300 000. The company will pay \$150 000 upfront and the balance will be paid in equal instalments at the end of each year for the first three years. The machine will have a useful life of six years and then it will be sold for \$30 000. The company intends to depreciate the machine using the straight line method.

To partially finance the upfront payment, the company will arrange for a loan of \$100 000. The loan carries an interest of 10% a year, payable at the end of each year. The loan would be repaid at the end of year 6.

If the machine is installed, salary savings of \$75 000 per year will result. Annual maintenance will cost \$6 000 a year. These savings and cost may be assumed to arise at the end of each year.

For investment appraisal decisions, the company uses a weighted average cost of capital of 12%.

REQUIRED

- (a) Calculate the net present value for the new machine.

The discount factors at 12% are:

[7]

Year	Present value of \$1 (\$)
1	0.893
2	0.797
3	0.712
4	0.636
5	0.567
6	0.507

- (b) Advise the firm whether or not it should buy the machine. Discuss the non-financial factors that should be taken into consideration. [7]
- (c) A director has heard of the payback method of appraising capital projects. State one advantage and one disadvantage of the payback method compared to the net present value method. [2]
- (d) Explain **two** limitations of relying on the quantitative information prepared for the purchase of the new machine. [4]

[Total: 20]

[Turn over]

Section B

Case study: Answer **all** questions.

- 4** Sri En Limited is a manufacturer with a reputation for producing quality toys. Its best selling products are Hero, Friend and Dream.

The budgeted financial data for January 2023 is as follows:

Product	Hero	Friend	Dream
Sales (units)	2 000	4 000	1 000
Per unit	\$	\$	\$
Selling price	44	24	20
Direct material – material X	18	6	12
Direct labour	10	4	6
Allocated fixed overheads	6	4	4

All products use the same material – material X which is bought from a supplier at \$3 per metre. Sri En Limited currently holds 16 200 metres of material X.

The supplier has informed Sri En Limited that due to production problems, it can only supply 2 000 metres of material X to Sri En Limited for January 2023. No alternative supplier is available at such a short notice.

Additional Information

There have been a few proposals offered in the year to Sri En Ltd from the marketing and production departments.

Proposal 1

A customer has approached the company offering to buy as many units of Friend that it can produce with the available quantities of material X. The customer has offered a price of \$21 per unit of Friend.

Proposal 2

Sri En Limited is currently reviewing its product range and is considering to stop the production of Dream as the demand for this toy is the lowest among the three toys.

Proposal 3

Gita Limited, a subsidiary of Sri En Limited, makes soft toys. It is reviewing its production budgets for 2023. Shown below are the budgeted unit costs for two of its products, Cat and Rabbit.

	Cat \$ per unit	Rabbit \$ per unit
Direct materials	50	92
Direct labour	38	23
Variable overhead	12	9
Fixed overhead	<u>50</u>	<u>18</u>
	<u>150</u>	<u>142</u>

Budgeted production and sales for 2023 is 10 000 units of Cat and 15 000 units of Rabbit. It is possible to purchase Cat and Rabbit from another manufacturer for \$115 and \$108 per unit respectively. The company can rent out its factory space for \$4 000 per month if either product is not manufactured and \$15 000 per month if both products are not manufactured.

The management is considering the following options for 2023:

Option 1: Buy both Cat and Rabbit;

Option 2: Manufacture both Cat and Rabbit;

Option 3: Buy one and manufacture the other.

Ash, a manager at Gita Limited suggested that they should continue to manufacture both the products as they have already invested \$160 000 on a specialised equipment to be used in the manufacturing process. If production of both products were to cease, the equipment will become redundant and will have to be written off as it cannot be resold.

[Turn over

REQUIRED

- (a) Prepare a statement to show the total contribution for each product and the overall profit for January 2023. [5]
- (b) Calculate the break-even sales in dollars for Hero. [2]
- (c) Calculate the maximum profit for January 2023 if Sri En Limited makes the best use of material X. [8]
- (d) For Proposal 1, calculate the profit that the order will earn if it is accepted. Advise the company whether or not they should accept the order. Justify your answer, taking into consideration the non-financial factors. [9]
- (e) Advise Sri En Limited if it should stop the production of Dream in Proposal 2. Justify your answer. [4]
- (f) Recommend to the management which option they should choose for Proposal 3 based on the costs calculation. Discuss **two** qualitative factors to consider in your answer. [8]
- (g) Comment on the suggestion given by Ash, the manager at Gita Limited. [4]

[Total: 40]

MARKING SCHEME TO PRELIM P2

Question 1 (a) Production budget for the 3 months ending 30 November 2023

	August (extra)	September	October	November	Dec (extra)	Jan
Sales units (1m)	-	50,000	30,000	25,000	28,000	32 000
Add closing inventory	<u>65,000</u> (50000 +15000)	<u>42,500</u> (30000 + 12500)	<u>39,000</u>	<u>44,000</u>	<u>47,000</u>	<u>1</u>
	65,000	92,500	69,000	69,000	75,000	
Less opening inventory	-	<u>65,000</u>	<u>42,500</u>	<u>39,000</u>	<u>44,000</u>	<u>1</u>
Production units	<u>65,000</u>	<u>27,500</u>	<u>26,500</u>	<u>30,000</u>	<u>31,000 #</u>	

(b) Raw materials budget for the 3 months ending 30 November 2023

	August	September	October	November	
Production requirements	130,000	55,000 (27,500x2)	53,000 (26500 x 2)	60,000 (30000 x 2)	1
Add closing inventory	<u>55,000</u>	<u>53,000</u>	<u>60,000</u>	<u>62,000</u> # (to meet Dec prod)	<u>1</u>
	185,000	108,000	113,000	122,000	
Less opening inventory	-	<u>55,000</u>	<u>53,000</u>	<u>60,000</u>	<u>1</u>
Units to purchase	<u>185,000</u>	<u>53,000</u>	<u>60,000</u>	<u>62,000 (60 000x1.5)+ (2000 x1.5 x 0.8)</u>	
Purchase costs	<u>\$240,000 *</u>	<u>\$79,500</u>	<u>\$90,000</u>	<u>\$92,400</u>	<u>1</u>
When to pay?	Paid in Sept	Paid in Oct	Paid in Nov		

* (60000 units x \$1.50) + (125 000 units x 1.5 x 80%)

(c) Cash budget for the 3 months ending 30 November 2023

	September \$	October \$	November \$	
<u>Receipts</u>				
Cash sales	57,600	43,200	36 000 (40 000 x 0.9)	1
Trade Receivables	-	<u>576 000</u>	<u>432 000</u> (480 000 x 0.9)	<u>2</u>
	<u>57 600</u>	<u>619 200</u>	<u>468 000</u>	
<u>Payments</u>				
Trade Payables	240,000*	79,500	90,000	1
Direct labour	165,000	159,000	180,000	1 (OF)
Fixed Production expenses	36,000	36,000	36,000 (480000-48000/12)	1
Selling expense	50,000	30,000	25,000	1
Non current assets	-	-	-	1
<u>Net Receipts (TR-TP)</u>	<u>(433 400)</u>	<u>314 700</u>	<u>137 000</u>	
Bal b/d (Opening bal)	<u>200 000 (1)</u>	<u>(233 400)</u>	<u>81 300</u>	
Bal cld (Ending bal)	<u>(233,400)</u>	81 300	<u>218 300</u>	

(d) (Any 1 pts @ 2m each)

- Budgets provide a quantitative plan for forward thinking and the identification of short-term objectives. Having targets set, managers are motivated to look ahead, anticipate problems to achieve these goals.
- Budgets provide a useful benchmark for evaluating and rewarding employee performance. Budgets can be used as a yardstick in judging whether performances have been up to par and these can motivate managers to perform to par.
- Budgets can motivate managers to better performance. Setting a required level of achievement can motivate managers better as it helps them relate their role to the organisation's overall objective. (personal ownership for the budgets)

(Any 1 point @ 2m each)

However, care needs to be taken to ensure that budgets are implemented correctly to avoid unintended effects on behaviour

- Budgets may be unrealistic especially if the budgeting process results in overstated needs or lower targets set. This practice of budgetary slack makes it easier for managers to meet those targets and not motivate them to perform better.
- Budgets encourage incremental thinking by employing a "last year X %" approach to planning. Inflexibility in implementing budgets may lead to employees being fixated with keeping within the budget and foregoing necessary expenditures and not motivated to develop break-out strategies that may be necessary in a fast-changing environment.
- Using budgets as a benchmark for evaluating and rewarding may have a reverse effect and instead of motivating, workers may be demoralized if they feel they have been unfairly evaluated simply based on not achieving budgetary objectives esp if the reasons are not clearly investigated.

Any 2pts X 2m (for and against) and other acceptable pts in discussion.

Question 2

(a)						
	Original Budget	Flexible Budget			Actual	
Units	6 000	5 000			5 000	
	\$	\$			\$	
Sales	156 000	130 000		5000x\$26	132 500	5000x\$26.50
Less costs						
Raw materials	43 200	36 000	/	5000x2.4x\$3	23 400	5000x2.6x\$1.80
Direct labour	63 000	52 500	/	5000x1.5x\$7	81 900	5000x1.5x140%x\$7.80
Variable OH	12 000	10 000	/	5000x\$2	11 000	5000x\$2x110%
Fixed Overheads	12 000	12 000	/		9 000	
Net Profit	25 800	19 500			7 200	

(b) • Unexpected changes in rates e.g. rental rates, utilities rates • Unexpected savings in expenditures e.g. less machinery repairs due to less breakdowns or less amount produced. • A suitable base/cost driver was not chosen to determine the overhead rate to apply. This means that the base chosen did not have a <u>direct cause-effect relationship</u> which should the total factory overhead should increase in tandem with. Some reasons for over or under application are: (Notes Topic 20) ▪ An unsuitable base was used to assign factory overhead. There was no correlation (direct cause-effect relationship) between factory overhead and allocation base chosen. (Or the allocation base should be a cost driver or a measure that causes or influences the amount of manufacturing overhead cost.) ▪ Unexpected changes in factory overhead items. Some examples are changes in insurance rates, indirect labour and indirect material. ▪ Changes in activity levels. The actual number of units produced (compared to the estimated or budget) is either too high or too low.	////
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(Remember to indicate favourable or unfavourable/adverse)

(c)			\$	
1	Sales price	5000 x \$(26-26.5)	2500 favourable	/
2	Direct materials usage	5000 x (2.6-2.4)kg x \$3	3000 unfavourable	/
3	Direct materials price	5000 x 2.6 x \$(1.8-3)	15600 favourable	/
4	Direct labour efficiency	5000 x 1.5 x 40% x \$7	21000 unfavourable	/
5	Direct labour rate	5000 x 1.5 x 140% x \$(7.8-7)	8400 unfavourable	/
			14300 unfavourable	

(d) Cheaper raw material resulting in favourable material price variance but which caused more wastage resulting in unfavourable material usage variance due to poorer quality.	/
(e) (any 2 pts @2m + link to profit @1m or any acceptable answers) • Analyse sales variance as the quantity produced and sold (5000) is less than budgeted (6000). Investigate relationship between sales price and volume and how the marketing dept is able to sell at higher price. • Analyse the direct labour variance as the labour efficiency variance and rate are both adverse. Analyse the relationship/ link between the direct material usage variance to the labour efficiency variance. Cheaper raw material resulting in favourable material price variance but due to poorer quality, required more labour hours and hence higher overtime rates or more skilled labour. (decrease in cost results in increase in profit; Wastage increases expenses and hence decreases profit) • Reasons must be given by the relevant Production and Human Resource dept as to why the Labour efficiency variance and Labour rate variance are so adverse as a with higher productivity and better rates will improve the net profit for the company.	/// ///

Question 3 (a)

	Working for computation of Cash flows	Cash Flow	Discount Factor	Present Value
Year 0 (Year 1 Start)	-150000+100000	-50 000		-50 000
Year 1 end	-50000-10000+75000-6000	9 000	0.893	8 037
Year 2 end	-50000-10000+75000-6000	9 000	0.797	7 173
Year 3 end	-50000-10000+75000-6000	9 000	0.712	6 408
Year 4 end	-10000+75000-6000	59 000	0.636	37 524
Year 5 end	-10000+75000-6000	59 000	0.567	33 453
Year 6 end	+30000-100000-10000+75000-6000	-11 000	0.507	-5 577
			NPV	37 018

(b) Yes, should buy since NPV is positive. /

Non-financial factors

Staff /Workers

- Whether staff has the ability to operate the new machine
- Impact of morale of existing staff who may not feel secure about their jobs.
- Loyal workforce maybe difficult to retrench
- Ageing workforce/ difficulties in hiring in the future

Machine/ Whether the supplier will provide training for use of the machine, after sales support and service.

- Reliability of the machine
 - Maintenance of the machine may result in increased costs
- Innovation and keeping up with trends/ Upgrading technology
- Effect on quality of its product and impact on its sales to customers who may want updated and innovative products.

(c) Advantages of PB method over NPV (any 1 pt @ 1m))

- can be used to compare projects of different sizes
- easier to calculate than NPV
- takes into account liquidity of biz
- reduces risks as initial outlay can be recovered as quickly as possible.

Disadvantages (any 1 pt @ 1m)

- does not take into account net present value
- ignores cash flows after PB period

(d) The quantitative data is important in making the decision on whether or not to purchase the new machine. However, relying on quantitative information alone has limitations. Specifically, the directors need to challenge the **accuracy of forecasts**. If these forecasts are incorrect then the whole evaluation process is flawed.

It is important to consider whether a **discount factor of 12% is acceptable** with the finance required for the new machine. It 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. Apart from using the NPV, the directors may be restricted by a maximum payback period and it is necessary to consider if the cash flow/returns meets that criterion. **The negative cash flow in final period is ignored when calculating payback.** The negative amount could be higher, which will impact on the NPV calculation.

Question 4

a. Statement to show Contribution for January 2023

Product	Hero	Friend	Dream	Total	
	\$	\$	\$		1.
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	/[5m]
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	/
(Maximum profit if making best use of material X)					[8]

d.

Product	Friend	
No of units [18 200/ 2]	9 100	/
SP – DM -DL	\$	
UCM [21 – 6 – 4]	11	
Contribution Margin [9 100x 11]	100 100	//
Less : FC	32 000	/
Net Profit	68 100	/

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

Other non-financial factors: (Any 2 @ 2m each)

- 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 Friend and there could be **hidden costs** involved e.g. retraining of workers and adaptation of machines from other product lines to Friend.

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

[9]

e.

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

Any 2 qualitative factors @ 1m each

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

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)

Remember: Qualitative factors for consideration covers where appropriate these areas:

1. Customers

3. Suppliers

5. Economy

2. Workers

4. Machinery

f.

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

Option	1 (Buy Both)	2 (Make both)	3 (Buy Cat, make Rabbit)	4 (Buy Rabbit, make Cat)	
Costs					
Buy Cat (10000 units)	$10\,000 \times 115 = 1\,150\,000$		1 150 000		
Buy Rabbit (15000 units)	$15\,000 \times 108 = 1\,620\,000$			1 620 000	
Make Cat (10000 units)		$10\,000 \times 100 = 10\,00\,000$		1 000 000	
Make Rabbit (15000 units)		$15\,000 \times 124 = 18\,60\,000$	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	
	/	/	/	/	

OR (treating the rental income as an opportunity cost and not decreasing total costs as revenue)

Option	1 (Buy Both)	2 (Make both)	3 (Buy Cat, make Rabbit)	4 (Buy Rabbit, make Cat)	
Costs					
Buy Cat (10000 units)	$10\,000 \times 115 = 1\,150\,000$		1 150 000		
Buy Rabbit (15000 units)	$15\,000 \times 108 = 1\,620\,000$			1 620 000	
Make Cat (10000 units)		$10\,000 \times 100 = 10\,00\,000$		1 000 000	
Make Rabbit (15000 units)		$15\,000 \times 124 = 18\,60\,000$	1 860 000		
Opportunity Cost (Rental income)		$12 \times 15\,000 = 180\,000$	$12 \times 4\,000 = 48\,000$	48 000	
	2 770 000	3 040 000	3 058 000	2 668 000	

Both presentation of cost calculation will lead to the same recommendation:

Recommendation based on cost calculation:

Option 3 - Buy Rabbit and make Cat as it is the **cheapest** option. //

Qualitative factors (any 2 @ 1m each)

- Need to consider **redeploying employees** who used to make Rabbit and re-training costs. If **retrenched**, need to consider impact on **morale and productivity on remaining workers**
- **Quality** of Rabbit 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.

[8]

g.

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 Rabbit and Cat. 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]