

2022 H2PAA Prelim Paper 2 Answer Guide

Question 1

(a) Fixed Costs: Costs that remain constant over a specific range of activity level. (*the relevant range). For example, rental of factory does not vary with the number of units produced if the business operates at its present capacity.

Variable Costs: Costs that vary with changes in activity level.
e.g. raw material cost will change in direct proportion with the units produced eg. The cloth used in the manufacture will change in the proportion with the number of uniforms manufactured.

(b) Difference in factory cost at 2 different production units = $55\,000 - 35\,000 = 20\,000$
Variable Factory cost per unit = $20\,000 / 5\,000 = \$4$
Fixed Factory cost = $\$35\,000 - 5000 \times \$4 = \$15\,000$
Unit CM = $\$40 - VC (16+4) = \20

The break-even point in units = $\frac{\text{Fixed Cost}}{\text{Unit CM}} = \frac{80000 + 15000}{\$20}$

= 4 750 units

[Total: 6m]

(c)

Number of units to earn a profit of \$50 000 = $\$ (95\,000 + 50\,000) / \text{UCM}$
= 7 250 units

[Total: 2m]

(c) The limitations of using break-even analysis to make decisions:

Assumptions of CVP Analysis	Limitations
A Selling prices and costs remain constant.	Selling prices and costs do not remain constant
B All cost can be classified into fixed and variable components	Many costs are semi-variable and is difficult to separate into its fixed and variable components
C Total fixed costs will remain constant.	Total fixed costs may not remain constant even at the relevant range
D Total variable costs vary in direct proportion to sales volume.	Variable costs may not vary directly to volume. E.g. As workers becomes more efficient, wages (a variable cost) may not increase in the same rate as production volume.
E Efficiency and productivity remain constant.	Efficiency and productivity do not remain constant.
G Volume is the only factor that is affecting costs and sales	Besides volume, other factors such as price, efficiency and the economy also affect costs and sales.
H Production and sales volume are equal, i.e. all units produced are sold.	All production will have ending stock

(d) The business should accept the special order.

Even though the special selling price of \$25 per unit is below its usual selling price of \$40 per unit, the special order will give rise to a CM per unit of \$5 which will go towards covering the fixed cost of the business and increase its profit and no additional fixed cost/opportunity will be incurred as business is operating below capacity . **(Total: 4m)**

Question 2

a	
Advantages of budgets Budgets promote forward thinking and the identification of short-term objectives. Budgets play an important communication and coordination role in a business. Budgets provide a basis for a system of control. Budgets provide a useful benchmark for evaluating and rewarding employee performance Budgets can motivate managers to better performance	Any 2
Disadvantages of budgets Budgets may be unrealistic especially if the budgeting process results in overstated needs or lower targets set. Budgets are subject to uncertainty as it is based on forecasts. Budgets focus management attention on achieving short-term objectives instead of on actions which create value for the business Budgets may protect costs rather than lower costs	Any 2

		(b)			
	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%
Contribution margin	37 800	31 500		16 200	

(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) 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.

Question 3

(a)

	Option 1		Option 2		Option 3	
	\$	\$	\$	\$	\$	\$
Girona – hrs X \$ 300		30 000		240 000/		120 000
Ariel		260 000		-		260 000
Bart		195 000		195 000		-
New assistant		195 000		-		-
		<u>680 000</u>		435 000		380 000/
Less: <u>Expenses</u>						
Fixed Occ & sec costs	245 000		245 000		140 000	
Direct costs@ 15% of rev	102 000		65 250		57 000	
Salary A	90 000		-		90 000	
Salary B	75 000		75 000		-	
New Cost	75 000	(587 000)	-	(385 250)	-	(287 000)
Net Profit		93 000		49 750		93 000

[Total: 12m]

(b)	Fee Earning Hrs	Supervision Hrs	Total Hrs Worked
Option 1	100	300 + 500 + 500	1400
Option 2	800	500	1300
Option 3	400	300	700

(c) Girona's Best choice is Option # 3.

- Meets Girona's target profit of \$90 000 per year
- Better than Option 1 which gives the same profit as Option 3 required fewer number of working hours which meets Girona's objective of working fewer hours

(d) Effect on morale of Ariel as Bart will be retrenched.

Cheaper premises on the impact on her reputation.

Lower secretarial fees on the quality of service provided to her clients.

Need to give up some existing clients as total hours of service will be reduced from 3600h to 1700h.

(Any 2 X 1m)

Question 4

- (a) Contribution margin is the difference between sales and variable cost.

In the short run, fixed costs are expected to remain constant within the relevant range. As such only variable costs are expected to change. Relevant costs for decision making are to be incurred in the future and is expected to vary among alternatives. Contribution margin focuses on sales and variable costs, both of which vary with units sold / produced and is likely to vary amongst alternatives, ensuring relevance to the decision to be made.

Contribution margin measures the contribution a product or alternative makes towards covering fixed cost which will improve the overall profitability of the alternative. However, if contribution margin is negative, this implies that the alternative is unable to cover its variable and will make a loss with every unit sold.

- (b) Should not discontinue 'Beta' as the product line provides a contribution of \$96 000 to cover the firm's total fixed costs of \$258 000. Discontinuing Beta will cause profits to fall by \$96 000(1m) as Beta's allocated fixed is unavoidable by its closure and will have to be absorbed by the remaining products 'Alpha' and 'Delta'.

- (c) Statement of Contribution and Profit

	Alpha	Beta	Delta	Overall
	\$	\$	\$	\$
Sales	648 000	288 000	900 000	1 836 000
Less: Variable Cost				
Direct materials	216 000	24 000	240 000	480 000
Direct labour	120 000	60 000	300 000	480 000
Variable overheads	264 000	108 000	168 000	540 000
Contribution margin	48 000/	96 000/	192 000	336 000
Less: Fixed costs				258 000
Profit				78 000

(d)	Alpha	Beta	Delta
Selling price per unit	360	120	450
Variable cost per unit	300	96	354
CM per unit	60	24	96
DLH used per unit	2h	1h	5h
CM per DLH	\$30	\$24	\$19.20
Ranking	1st	2nd	3 rd
Demand	1500 units	6000 unit	3000 unit
Optimal production plan	1500 unit	6000 units	1 400 units (16000 – 3000 – 6000)/5
DLH used	3000 DLH	6000 DLH	7000 DLH
Computation of profit under the optimal production strategy			Sales Director
			\$
CM – Alpha			90 000
CM- Beta			144 000
CM - Delta			134 400
Total			368 400 (1m)
Less: Fixed overheads			(258 000)
Profit			110 400 (1m)

(d) Adopt the sales director's forecast and optimise profits by producing according to the most profitable use of direct labour hours.

CM under the Sales Directors' proposal is \$32 400 higher than the Managing Director's.

- Not arbitrary. Based on most profitable use of limited resource subject to the accuracy of sales forecast.
- Affects only the customers of Delta whereas the managing director's proposal will affect 2 groups of customers.
- Etc

[1 X 2m]

Total: 4m

(f) Computation of Net Present Value

Year	Cash Flows	Discount Factors	Present Value
	\$		\$
1	69 000	0.893	61 617
2	69 000	0.797	54 993
3	69 000	0.712	49 128
4	69 000	0.636	43 884
5	69 000	0.567	39 123
6	99 000	0.507	50 193
			298 938
Less: Initial cash flow			(250 000)
Net present value			48 938

Yes, the business should invest in the machinery (1m) as its yields a positive NPV of \$48 938. (1m)

(g) Other factors to consider:

- Reliability of the technical estimates which affects the accuracy of projected savings in labour cost.
- Reliability of machinery as it affects the projected maintenance.
- After sales support given by the supplier
- Training needed for its workers to operate the machinery
- Effect on employee morale as they may feel threatened by the possibility of being replaced by machinery in future.
- Quality of the products made by machines.
- Etc

(h) Limitations of discounted cash flows

- It is **difficult to estimate** the cash flows and the period in which they will be paid or received.
- Difficult to determine a **suitable discount rate or cost of capital**. This will in turn affect the accuracy of the assessment.
- Cannot be used to compare projects of **different sizes** as bigger projects will have higher NPVs than smaller ones.