4 K Limited produces goods at two sites and uses marginal costing.

At one site the company makes a single product. The following details are available.

Maximum capacity	14 500 units per month
Fixed costs	$216 000 per month

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Unit selling price	90
Costs per unit:	
Direct materials	25
Direct labour	36
Other variable costs	11

REQUIRED

(a) Calculate the break-even point per month in units.

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(b) Define the term 'margin of safety'.

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Additional information

The directors have decided to make the following changes:

1 Reduce selling price by 2%.

2 Introduce a sales commission of $2 per unit on every unit sold in excess of 5000 units per month.

3 Purchase direct materials in bulk and obtain a trade discount of 20%.

Buying direct materials in bulk will increase storage costs by $4000 per month.

Demand will be 98% of factory capacity.

REQUIRED

(c) Prepare a marginal costing statement to show the monthly profit based on these changes.

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(d) Explain **two** advantages of using a system of marginal costing.

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Additional information

At its other site the company makes three products: Product X, Product Y and Product Z. The following details are available.

	Product X	Product Y	Product Z
Contribution per unit	$15	$20	$27
Machine hours per unit	1.5	2.5	3
Maximum monthly output in units	600	300	200

Fixed costs per month are $14 100.

Each month the company plans to work to full capacity producing the maximum output of each product.

In August 2021 only two-thirds of the month's machine hours will be available.

REQUIRED

(e) Calculate the machine hours available in August 2021.

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Additional information

The company has a regular order to supply one major customer with 50% of the output of each product per month.

Two options are being considered to deal with the shortage of machine hours.

Option 1: The finance director has recommended the company makes the maximum profit possible in August 2021 and if necessary not complete all of the major customer's order.

Option 2: The sales director has recommended that the company should ensure it fulfils the major customer's order.

REQUIRED

(f) Calculate the profit or loss for August 2021 based on:

(i) Option 1

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(ii) Option 2

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(g) Advise which option the company should choose. Justify your advice by discussing **both** options. (Consider **both** financial and non-financial factors.)

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