

Q3

$$(a) (i) \text{ revenue} = p \times q \\ = 5q$$

$$\text{cost} = \text{fixed cost} + \text{variable cost} \\ = 10,000 + 3q$$

Breakeven quantity $\Rightarrow$ Revenue = Cost

$$5q = 10,000 + 3q$$

$$2q = 10,000 \quad q = 5,000$$

$$(ii) \text{ Budgeted profit} = \text{Revenue} - \text{Cost}$$

$$= 5q - (10,000 + 3q)$$

$$= 5 \times 10,000 - 10,000 - 3 \times 10,000$$

$$= \pm 10,000$$

$$(iii) \text{ margin of safety} = \frac{10,000 - 5,000}{10,000} \times 100$$

$$= 50\%$$

$$(b) (i) \text{ revenue} = p \times q$$

$$\text{cost} = \text{fixed cost} + \text{variable cost} \\ = 10,000 + 3q$$

Breakeven quantity $\Rightarrow$ Revenue = Cost

$$4q = 10,000 + 3q$$

$$q = 10,000$$

$$(ii) \text{ Budgeted profit} = \text{Revenue} - \text{Cost}$$

$$= 4q - (10,000 + 3q)$$

$$= 4 \times 15,000 - 10,000 - 3 \times 15,000$$

$$= \pm 5,000$$

$$(iii) \text{ margin of safety} = \frac{15,000 - 10,000}{15,000} \times 100 = 33.3\%$$

(c) Summary	Breakeven	Budgeted profit	Margin of safety
(a)	5,000	10,000	50%
(b)	10,000	5,000	33.3%

Option (a) is preferred since it has a lower breakeven value and a higher Budgeted profit and margin of safety.