

## Unit 3.3

### Break-even analysis

#### Task 1 – Complete the missing words...

Break-even occurs when a firm's **sales** revenue equals its **total** costs. The firm will make a **loss** if it operates below its break-even level of output. By contrast, if it is able to generate more revenue than costs incurred in production then it will make a **profit**. Profit is the positive difference between sales revenues and the **costs** of production, i.e. total revenues minus total costs.

To calculate break-even, it is common to use the **contribution** method by dividing the **fixed** costs by the difference between the product's selling price and its **variable** costs of production. For example, if a manufacturer of wooden toy trains has fixed costs of \$3000 per month, with an average variable cost of \$10 and a selling price of \$25, then its break-even level of output would be **200** toy trains per month. Contribution analysis can help a business to identify products or projects that are relatively profitable and ones that might need more attention.

#### Task 2 – True or False?

|    | True / False |
|----|--------------|
| a. | F            |
| b. | T            |
| c. | F            |
| d. | T            |
| e. | T            |
| f. | T            |
| g. | T            |
| h. | F            |
| i. | T            |
| j. | T            |

#### Task 3 – Calculating break-even

a.  $\$50\,000 / 1000 = \$50$  per unit

b.  $TC = \$40\,000$  (i.e.  $\$50\,000 - \$10\,000$ )  
 $TVC = \$35\,000$  (i.e.  $\$40\,000 - \$5000$ )  
 Hence,  $AVC = \$35\,000 \div 1000 = \$35$  per unit

c.  $\$5000 \div (\$50 - \$35) = 334$  units

d.  $600 - 334 = 266$  units (or close to 80% above break-even)

e.  $\$30 - \$15 = \$15$

f.  $100,000 \div \$15 = 6,667$  units

g. i. Costs & revenues (\$); ii. Sales revenue; iii. Total costs; iv. Fixed costs; v. Output level (units); vi. Break-even point; vii. Break-even level of output (or Break-even quantity)

- h. Break-even analysis tends to be used for a single operation. If there is more than one product involved, fixed costs might not be easily divided between the various products, thereby making it difficult to determine an accurate break even level.**
- i. Increase the break-even point, e.g. due to higher fixed costs. Decline in sales, e.g. due to an economic recession.**

**Task 4 - Multiple Choice**

- 1. **C. Factory rental costs**
- 2. **B. After-sales care**
- 3. **C. selling, average**
- 4. **B. Price minus average variable costs**
- 5. **A. Total revenue and total variable costs**
- 6. **D. It accounts for both fixed and variable costs**
- 7. **B. Reducing its prices**
- 8. **B. Unit contribution**
- 9. **D. \$3.6 million**
- 10. **D. Average fixed costs**
- 11. **B. above, profit**
- 12. **A. Break-even output will fall**
- 13. **C. The firm operates at a level higher than its break-even**

Questions 14 – 17 refer to the following information: Parc Oasis Ltd. has fixed costs of \$15 000 per month, with unit variable costs of \$200 and a selling price of \$500 per unit.

- 14. **C. \$35 000**
- 15. **A. \$275**
- 16. **C. 50**
- 17. **D. \$850**

Questions 18 – 21 refer to the following information: Jade Villa offers holiday accommodation at a beach resort. It has fixed costs of \$22 500 per time period. The variable cost per letting averages at \$250.

- 18. **C. 30**
- 19. **D. \$30 000**
- 20. **C. \$700**
- 21. **B. \$1250**
- 22. **B. Economies of scale can only occur as the firm expands output**
- 23. **A. It is a static model that does not cater well for the dynamic nature of business**
- 24. **D. Multi-product firms cannot use break-even analysis**
- 25. **D. Qualitative decision-making**