2.8 Analysing Operational Performance: Unit Cost and Capacity

Total Marks

AQA 7132 · Calculator allowed · about 50 minutes · Write-in edition

Name: _____ Date: ____ / ____ / _____

Answer ALL questions in the spaces provided. Show your working for every calculation. The case data for Albion Baking Co appears in question 5 and is used throughout this pack.

1 Which one of the following best describes labour productivity as used in business operations?

- ☐ A) Total revenue divided by number of workers
- ☐ B) Output per worker in a given time period
- ☐ C) Total costs divided by output
- ☐ D) The percentage of plant actually used

(Total for Question 1 is 1 mark)

2 State the formula for calculating labour productivity (output per worker) in operations management.

(Total for Question 2 is 1 mark)

3 State the formula for calculating unit cost (average cost of production) used in this pack.

(Total for Question 3 is 1 mark)

4 State the formula for calculating capacity utilisation for a production facility.

(Total for Question 4 is 1 mark)

---

5 Albion Baking Co, a fictional medium bakery, produces loaves of bread. The management report gives the following data for two periods in the same year.
Period 1: actual output 24,000 loaves; number of production workers 60; total monthly production costs £36,000; maximum monthly capacity 30,000 loaves.
Period 2: actual output 27,000 loaves; number of production workers 60; total monthly production costs £37,800; maximum monthly capacity 30,000 loaves.
Using the Period 1 figures above, calculate Albion Baking Co's labour productivity in Period 1, in loaves per worker. Show your working.

(Total for Question 5 is 2 marks)

---

6 State two possible causes of under-utilisation (low capacity utilisation) that might explain why a bakery like Albion Baking Co was operating at 80% capacity in Period 1.

(Total for Question 6 is 2 marks)

7 Using the Period 1 figures for Albion Baking Co, calculate the unit cost of production in Period 1, in pounds per loaf. Show your working.

(Total for Question 7 is 2 marks)

---

8 Using the Period 1 figures for Albion Baking Co, calculate the capacity utilisation in Period 1 as a percentage. Show your working.

(Total for Question 8 is 2 marks)

---

9 Using the Period 2 figures for Albion Baking Co, calculate the capacity utilisation in Period 2 as a percentage. Show your working.

(Total for Question 9 is 2 marks)

---

10 Using the Period 2 figures for Albion Baking Co, calculate the labour productivity in Period 2, in loaves per worker. Show your working.

(Total for Question 10 is 2 marks)

11 Using the Period 2 figures for Albion Baking Co, calculate the unit cost of production in Period 2, in pounds per loaf. Show your working.

(Total for Question 11 is 2 marks)

12 Calculate the percentage change in labour productivity from Period 1 to Period 2 for Albion Baking Co. Show your working and give your answer to one decimal place.

(Total for Question 12 is 3 marks)

---

13 Analyse the changes in Albion Baking Co's operational performance from Period 1 to Period 2 using the figures provided. Consider labour productivity, unit cost and capacity utilisation and explain what these changes suggest about efficiency. (6 marks)

(Total for Question 13 is 6 marks)

14 Assess the operational problems Albion Baking Co might face despite improved productivity and lower unit costs, and recommend two actions managers could take to sustain efficiency. Use the data given in this pack to support your assessment. (9 marks)

(Total for Question 14 is 9 marks)

Mark scheme · 2.8 Analysing Operational Performance: Unit Cost and Capacity

Question 1

B cao **B1**

Answer: B

Question 2

labour productivity = output / number of workers, or output per worker **B1**

Answer: Labour productivity = output divided by number of workers (output per worker).

Question 3

unit cost = total costs / output (average cost per unit) **B1**

Answer: Unit cost = total costs divided by output (average cost per unit).

Question 4

capacity utilisation = (actual output / maximum possible output) x 100% **B1**

Answer: Capacity utilisation = (actual output divided by maximum possible output) x 100%.

Question 5

24,000 / 60 seen **M1**

400 loaves per worker cao **A1**

Answer: 400 loaves per worker.

Question 6

lower than expected demand for the product, causing fewer orders/sales **B1**

temporary machine breakdowns or staff shortages reducing actual output **B1**

Answer: Any two, e.g. lower than expected demand; machine breakdowns or staff shortages reducing output.

Question 7

36,000 / 24,000 seen **M1**

£1.50 per loaf cao **A1**

Answer: £1.50 per loaf.

Question 8

(24,000 / 30,000) x 100 seen **M1**

80% cao **A1**

Answer: 80%.

Question 9

(27,000 / 30,000) x 100 seen **M1**

90% cao **A1**

Answer: 90%.

Question 10

27,000 / 60 seen **M1**

450 loaves per worker cao **A1**

Answer: 450 loaves per worker.

Question 11

37,800 / 27,000 seen **M1**

£1.40 per loaf cao **A1**

Answer: £1.40 per loaf.

Question 12

change = 450 - 400 = 50 seen **M1**

50 / 400 x 100 seen **M1**

12.5% cao **A1**

Answer: 12.5% increase.

Question 13

identifies that labour productivity increased (400 to 450) or gives the figures **B1**

identifies that unit cost decreased (£1.50 to £1.40) or gives the figures **B1**

identifies that capacity utilisation increased (80% to 90%) or gives the figures **B1**

explains the link between increased output per worker and improved efficiency, reducing unit cost **B1**

explains how higher capacity utilisation reduces the cost of spare capacity and spreads fixed costs **B1**

considers a limitation or caveat, for example increased absolute costs, one-off effects, or quality/overtime concerns **B1**

Question 14

Level 1 Makes simple statements about problems or recommendations with little use of the pack figures and limited linked explanation.	**1-3**
Level 2 Provides developed points using some pack figures, analyses one or two problems and gives plausible recommendations, but the judgement is not fully supported.	**4-6**
Level 3 Weighs several operational problems and evaluates recommended actions, uses specific pack figures (productivity, unit cost, capacity utilisation) to support the assessment, and reaches a justified conclusion.	**7-9**

Indicative content:

- Problems to consider: even though productivity rose, total costs increased from £36,000 to £37,800, so managers must check whether cost rises are due to overtime, higher material costs, or one-off payments and whether these threaten margins.
- High capacity utilisation at 90% reduces spare capacity but may leave little room for maintenance or demand spikes, increasing risk of breakdowns which could force costly disruption.
- If the same number of workers produced more output in Period 2, consider staff workload and morale: sustained higher output per worker might lead to fatigue, mistakes or reduced quality unless supported by training or investment.
- Recommendations: monitor and control variable costs and overtime to ensure unit-cost improvements are sustainable; analyse the rise in total costs to locate avoidable increases.
- Recommendations: consider small capacity expansion or flexible shifts to avoid running consistently at 90% which risks disruption, or schedule regular maintenance windows to reduce breakdown risk.
- Use of figures: reference the rise in productivity from 400 to 450 and unit cost fall from £1.50 to £1.40 as evidence of improved efficiency, but balance this against total cost rise of £1,800 and the move from 80% to 90% utilisation.
- Judgement: a justified conclusion might argue that overall performance improved and the business should try to sustain gains, but managers must address rising absolute costs and the risks of high utilisation by improving cost control and introducing capacity-flexibility measures.