5.8 Improving Production Efficiency: Lean Production, Just-in-Time and Kaizen: 10-minute Pack

AQA 8132 · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions in the spaces provided. Show your working for any calculation. The scenario used in several questions refers to Maple Toys Ltd, a fictional UK manufacturer.

1 Which one of the following best describes a feature of Just-in-Time (JIT) production on the factory floor?

- ☐ A) Making goods only when there is a customer order on the shop floor
- ☐ B) Holding large amounts of work-in-progress to cope with demand peaks
- ☐ C) Using a wide range of product designs in small batches
- ☐ D) Prioritising long production runs to lower setup time

(Total for Question 1 is 1 mark)

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2 State one likely benefit to Maple Toys Ltd's customers if the company implements kaizen and continuous improvements.

(Total for Question 2 is 1 mark)

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3 State one potential risk to Maple Toys Ltd of adopting JIT production on its factory floor.

(Total for Question 3 is 1 mark)

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4 Maple Toys Ltd plans to cut WIP from 2,000 units to 500 units by using JIT scheduling. Calculate the percentage reduction in work-in-progress. Show your working.

(Total for Question 4 is 2 marks)

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5 Scenario: Maple Toys Ltd is a small UK manufacturer that makes wooden toy cars. It currently makes 10,000 toy cars per month at an average unit cost of £5.00. Management plans to introduce lean production techniques on the assembly line to cut waste and improve flow. Explain how introducing lean production could reduce Maple Toys Ltd's unit costs. Use the company context in your answer.

(Total for Question 5 is 4 marks)

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Mark scheme · 5.8 Improving Production Efficiency: Lean Production, Just-in-Time and Kaizen: 10-minute Pack

Question 1

A cao **B1**

Answer: A

Question 2

a valid benefit, e.g. improved product quality or more reliable delivery times **B1**

Answer: Improved product quality, so customers receive fewer defective toys.

Question 3

a valid risk, e.g. supply delays cause the production line to stop **B1**

Answer: Supply delays could stop the assembly line, causing lost output.

Question 4

(2,000 - 500) seen or the change 1,500 seen **M1**

75% cao **A1**

Answer: 75%.

Question 5

identifies a reason, e.g. reducing waste such as excess work-in-progress or defects will lower costs per unit **B1**

develops the reason, e.g. fewer defects reduce rework costs and fewer wasted parts reduce material cost **B1**

applies to Maple Toys Ltd context, e.g. with 10,000 cars monthly even small waste reductions lower the average cost from £5.00 **B1**

links to an outcome, e.g. lower average unit cost improves margin or allows competitive pricing **B1**

Answer: Reducing waste such as defects and excess WIP will cut material and rework costs; for Maple Toys Ltd making 10,000 cars a month this lowers total costs so average unit cost falls from the current £5.00, improving profit margin or allowing lower prices to compete.

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