# 2.5 Lean Production: Just-in-Time, Kaizen and Time-Based Management: 30-minute Pack

AQA 7132 · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions in the spaces provided. Show working for calculations. GreenTech Bikes, used throughout this pack, is a fictional UK business.**

**1** State two features of kaizen as it might be practised at a small manufacturer such as GreenTech Bikes.

**(Total for Question 1 is 2 marks)**

**2** Explain one drawback of adopting JIT for GreenTech Bikes. Give a developed answer that refers to the business context.

**(Total for Question 2 is 6 marks)**


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**3** Evaluate whether GreenTech Bikes should adopt lean production across its operations, considering JIT, kaizen and time-based management, and using evidence from this pack. Reach a justified conclusion.

**(Total for Question 3 is 12 marks)**


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# Mark scheme · 2.5 Lean Production: Just-in-Time, Kaizen and Time-Based Management: 30-minute Pack

## Question 1

| | |
|---|---|
| employee suggestions for small, ongoing improvements to processes | **B1** |
| frequent implementation of small changes rather than occasional large projects | **B1** |

**Answer: Employee suggestions for small improvements; frequent small changes rather than occasional large projects.**

## Question 2

| | |
|---|---|
| identifies a drawback, for example lack of buffer stock increases vulnerability to supplier delays | **B1** |
| applies this to GreenTech Bikes, for example a late delivery of battery packs could stop assembly of electric bikes | **B1** |
| develops the consequence, for example production stoppage leads to lost sales and unmet delivery promises | **B1** |
| links to a financial or reputational outcome, for example lost revenue or damage to customer relationships | **B1** |
| explains a mitigation cost, for example holding a small safety stock or paying more for faster deliveries | **B1** |
| gives a short evaluative comment, for example the risk may be acceptable if suppliers are reliable but not if supply chains are unstable | **B1** |

**Answer: Operating with minimal stock makes GreenTech Bikes vulnerable to supplier delays; for example, a late delivery of battery packs would halt assembly, causing lost sales and missed delivery dates and potentially harming customer relationships. Mitigation, such as holding small safety stocks or paying for quicker deliveries, increases costs. The risk may be acceptable with very reliable suppliers but is dangerous if supply chains are unstable.**

## Question 3

| | |
|---|---|
| **Level 1** Limited evaluation with general points about lean production. Little use of the pack's figures and no clear judgement about GreenTech Bikes. | **1-4** |
| **Level 2** A developed evaluation that uses some evidence from the pack, considering both benefits and risks. May offer a recommendation but with limited justification. | **5-8** |
| **Level 3** A well developed evaluation that balances detailed advantages and disadvantages, applies figures and examples from the pack, considers mitigations, and reaches a justified conclusion appropriate to GreenTech Bikes. | **9-12** |

**Indicative content:**

- Benefits: lower inventory holding costs (example reduction from 150,000 to £90,000), reduced waste, improved flow and quicker response to customer orders, and continuous incremental improvements from kaizen that raise efficiency and staff engagement.
- Risks: increased vulnerability to supply chain disruption, especially with overseas suppliers and seasonal peaks; potential hidden costs of implementing systems such as kanban or staff training; possible need to pay higher prices for faster deliveries or hold small safety stocks.
- Time-based management: mass customisation and reduced time-to-market can increase competitiveness and allow premium pricing, but require flexible processes and possibly investment in modular design or parallel processing.
- Mitigations: using multiple suppliers, holding minimal safety stock for critical components, investing in closer supplier relationships, and rolling out lean methods gradually starting with pilot lines.
- Judgement: a balanced conclusion might recommend adopting lean production selectively and with safeguards: implement kaizen and kanban widely to gain efficiency gains, trial JIT on components with reliable local suppliers, and adopt time-based approaches where mass customisation adds clear value. Full adoption across all suppliers and components carries risk unless supplier reliability and contingency plans are in place.


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