

Answers and marking guidance

Award one mark per correct, developed point unless stated. Other valid answers should be credited.

2 Explain issues a manufacturer should consider before choosing a production system for a new kettle.

- Expected demand/volume of sales
- Investment needed in tooling and machinery
- Skill and size of the workforce
- Required lead time
- Flexibility to change models

3 Quick check

- a) Cannot easily cope with a sudden increase in orders
- b) Mass
- c) Reduces marking out and improves accuracy and repeatability
- d) Dependence on an outside supplier

4 Key terms

- 1 – C
- 2 – A
- 3 – B
- 4 – F
- 5 – E
- 6 – D

5 Explain the benefits and drawbacks to the manufacturer of using standard components.

- Benefits: cheaper than making them; consistent known quality; readily available, supports JIT; fewer processes and simpler assembly
- Drawbacks: reliance on a supplier, delays stop production; less control over quality; may restrict the design; sustainability of the supply chain

No marks for: Max 3 from one side (3+1); Consumer viewpoint when asked about the manufacturer

6 Describe how Gantt charts and just-in-time production are used in the development and manufacture of products.

- Gantt: shows tasks against time so deadlines are planned
- Gantt: identifies tasks that can run at the same time, cutting lead time
- JIT: parts arrive only when needed so little stock is stored
- JIT: less money tied up in stock and less waste
- Split 3+1 or 2+2 across both

No marks for: Naming only

7 Explain why production and planning systems are used in the development and manufacture of new products.

- Production systems: one-off, batch, mass chosen by demand and investment
- Jigs and fixtures: accuracy, less marking out, less skilled labour
- CAD/CAM and CNC: accuracy, repeatability, 24-hour running
- JIT: less stock, less waste, shorter lead times
- Standard components: known quality, faster assembly
- Gantt and flow charts: plan tasks, deadlines, staff and machines
- Link each to a benefit: lower cost, quality control, reduced delays, higher output