**Design & Technology**

**AQA A-Level** Logo

Description automatically generated with low confidence

**Sub-assembly**

**Materials required for questions**

* Pencil
* Rubber
* Calculator

**Instructions**

* Use black ink or ball-point pen
* Try answer all questions
* Use the space provided to answer questions
* Calculators can be used if necessary
* For the multiple choice questions, circle your answer

**Advice**

* Marks for each question are in brackets
* Read each question fully
* Try to answer every question
* Don’t spend too much time on one question

**Good luck!**

**Q1.** What is a key purpose of sub-assembly in manufacturing?

**A** To delay the final production process

**B** To build components separately before final assembly

**C** To reduce the need for specialised workers

**Q2.** Which product is most likely to use sub-assembly lines?

**A** Handmade pottery

**B** A custom-designed wedding dress

**C** A car engine

**Q3.** How does sub-assembly improve efficiency?

**A** By completing all parts simultaneously on one production line

**B** By manufacturing components in parallel, reducing final assembly time

**C** By eliminating quality checks for individual parts

**Q4.** Which term describes pre-made components used in sub-assembly?

**A** Bespoke parts

**B** Standardised modules

**C** Raw materials

**Q5.** Explain how the use of sub-assembly lines benefits the manufacturing process **(4 marks)**

**Answers**

**Q1**. B

**Q2**. C

**Q3**. B

**Q4**. B

**Q5**.

* Sub-assembly involves manufacturing components separately (e.g., car engines, smartphone screens) before integrating them into the final product.
* Enables parallel production of parts, reducing overall lead time (e.g., engines and interiors built simultaneously).
* Defects are identified and resolved earlier in sub-assembly stages, minimising waste in the final assembly.
* Teams or suppliers focus on specific sub-assemblies, improving precision and reducing errors.
* Bulk production of standardised sub-assemblies lowers per-unit costs (economies of scale).
* Sub-assemblies can be stockpiled or adjusted independently, allowing quicker responses to design changes.
* Reduces complexity in the main production line by using pre-tested, ready-to-install components.