

**OCR A-Level**

**Understanding Ergonomic  
Considerations  
(1.3b)**

**Materials required for questions**

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- Pencil
- Rubber
- Calculator

**Instructions**

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- 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**

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- 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 percentile range is typically used when designing products to accommodate the majority of users?

- A** 1st to 50th percentile
- B** 5th to 95th percentile
- C** 50th to 99th percentile

**Q2.** Which type of anthropometric data would be most important when designing a computer mouse?

- A** Standing eye height
- B** Hand breadth and finger lengths
- C** Shoulder width

**Q3.** When designing an adjustable office chair, which anthropometric measurement is crucial for determining the seat height range?

- A** Popliteal height (knee height when seated)
- B** Arm span
- C** Head circumference

**Q4.** What does the 50th percentile represent in anthropometric data?

- A** The maximum measurement in a population
- B** The average or median measurement
- C** The minimum acceptable measurement

**Q5.** The image below shows a remote control.



Give 3 ergonomic features in the design of the remote control **(3 marks)**

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

**Q6.** Name two official sources of anthropometric data **(2 marks)**

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**Q7.** The image below shows some garden equipment. Outline features of the equipment that have been influenced by anthropometrics (**5 marks**)



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## Answers

Q1. B

Q2. B

Q3. A

Q4. B

Q5.

Award 1 mark for each ergonomic feature up to a maximum of 3:

- buttons easy to see
- comfortable or rounded shape in hand
- appropriate size to fit hand
- colour-coded buttons for ease of operation
- rubber buttons for better selection

Q6.

- British Standards Institute (BSI) (1)
- Department of Business Innovation and Skills (BIS) (1) (also accept Department for Trade and Industry (DTI))
- Compendium of essential design and technology standards for schools and colleges (1)
- European (anthropometric) database (1)
- European sizing survey (1)
- International Standards Organisation (ISO) (1)
- World Health Organisation (WHO) (1)

Q7.

- Length of hand/fingers have influenced the diameter of the hand holds. (1)
- Finger sizes have influenced the size/length/width of the trigger switch. (1)
- Range of finger movement has influenced how far the trigger switch moves. (1)  
Position of fingers / stronger fingers have influenced the position of the trigger. (1)
- Arm reach has influenced the distance between the two handles (1)
- Range of comfortable wrist movement has influenced the angle if the top handle. (1)
- Width / thickness of fingers have influenced the guard gap in the handle. (1)

- The width of a human hand has influenced the position of the two hand hold positions (1)