

## **Design & Technology**

# **Influence on design of anthropometrics and ergonomics**

### **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.** Ergonomics is the name given to the relationship between a product and its?

- A**        Manufacture
- B**        User
- C**        Packaging

**Q2.** Which word is used to describe designing products well so they are easy to use?

- A**        Aesthetics
- B**        Usability
- C**        Function

**Q3.** What is ergonomics?

- A**        measurements of the human body
- B**        data of human height
- C**        The use of anthropometric data

**Q4.** What percentiles should designers design products for?

- A**        5<sup>th</sup> to 95<sup>th</sup> percentile
- B**        5<sup>th</sup> to 50<sup>th</sup> percentile
- C**        50<sup>th</sup> to 95<sup>th</sup> percentile

**Q5.** What might happen if ergonomics is not used in design?

- A**      Users will have a poor user experience
- B**      users might take offence
- C**      users won't be able to adapt the user experience

**Q6.** Which of these is NOT an inclusive design factor?

- A**      function
- B**      cost
- C**      material choice

**Q7.** The image below shows a remote control.



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

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

**Q8.** The image below shows a games controller. Anthropometric data has been used to design the controller.



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

1.

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2.

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**Q9.** 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. C**

**Q4. A**

**Q5. A**

**Q6. B**

**Q7.**

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

**Q8.**

- 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)

**Q9.**

- 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 of 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)