

OCR A-Level

Factors Affecting User Interaction (1.3a)

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 does it mean for a product to be *inclusive*?

- A** It is designed only for expert users
- B** It can be used by as many different people as possible, regardless of ability
- C** It must meet government pricing standards

Q2. Why is it important to consider ergonomic design?

- A** To make products look stylish
- B** To ensure the product fits the user physically and reduces strain or discomfort
- C** To reduce the environmental impact

Q3. Which of the following best describes anthropometric data?

- A** Measurements of materials used in construction
- B** Statistical data about human body measurements
- C** A list of ergonomic features in a product

Q4. How might a new product negatively impact a user's lifestyle?

- A** By offering improved efficiency
- B** By being fully automated
- C** By requiring the user to change habits or routines significantly

Q5. A controller is a handheld input device used with video games on a computer or console



Q5a. Explain two ways in which anthropometric data has been used in the design of the controller (4 marks)

Q5b. Identify two ways in which the design of the controller is inclusive. Justify each of your answers. **(4 marks)**

Q6. The image shows three views of a walkie-talkie. A walkie-talkie is a hand-held portable two-way radio.



State two ergonomic factors that would need to be considered during the design development of the walkie-talkie. Justify each of your response. **(4 marks)**

Q7. The image shows a remote control for an electronic device.



Describe two ways in which ergonomic factors would be considered when designing the buttons on the remote control. **(4 marks)**

Answers

Q1. B

Q2. B

Q3. B

Q4. C

Q5a.

Possible ways may include:

- Length of thumbs could be considered for the position of the buttons (1) as the designer would need to consider the 5th percentile/ smallest user to ensure all could reach (1).
- Spacing of the buttons could be considered for the thickness of the fingers (1) as the largest users/95th percentile would need to be considered to ensure two buttons were not pressed at once. (1).
- Grip diameter would need to be considered to make the hand rests thick enough (1) as the smallest users/ 5th percentile would have to be accommodated to ensure all users could comfortably hold it (1).
- Any other suitable response that relates to the size of the controller or refers to reach/proximity of the buttons/toggles in relation to human size.

Q5b.

Positive ways may include:

- Black is a neutral colour (1) so will appeal to a wide range of genders (1).
- Buttons can be assigned different functions or left hand/right hand use can be set up (1) so users with less mobility/ who are left-handed will be able to use the range that is suitable/ comfortable for them (1)
- There are no words on the design - symbols are used (1) so it can be used by illiterate/ partially sighted or multiple languages without difficulty (1).
- Any other suitable response. Reference to user settings to improve inclusivity of the display on screen maybe given credit. Inclusive design relates to barrier free use by all users e.g., children, adults, elderly, those with limited grip/ arthritis, left and right handers, partial or limited sight, colour blind, physical disabilities, language barriers, SEN needs and gender. Users should be specified.

Q6.

Possible factors may include:

- The comfort of the user's hand (1) through grips shown as ridges on the edge/material used is softer to the touch round the edge (1).
- The screen display should be simple/clear to understand (1) to allow the users to interact with the walkie-talkie (1).
- The position of the buttons should be placed where the fingers and thumb naturally fall (1) so they can be pressed while being held (1).
- Any other valid suggestion.

Q7.

Possible ways may include:

- Position of frequently used buttons (1) for easy reach while still holding the control (1).
- Colour of the buttons to indicate function and improve usability (1) e.g. red for off on the power button (1).
- Raised areas on the buttons/ button shape (1) to help identify function without having to look (1).
- Size of the buttons related to buttons (1) used more frequently being bigger e.g. Vol. (1).
- Spacing in between the buttons (1) so that the average finger can press each one individually without pressing the one next to it (1).
- 'Standard' colours used that are used on other controls to aid recognition (1) and to follow colours used on the TV menus and control screens (1).
- Direction of movement of volume rocker button – up is increase, down is decrease (1) Following natural movement and usual orientation in products to avoid confusion (1).
- Any other valid suggestion for given context.