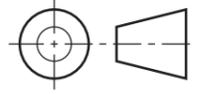
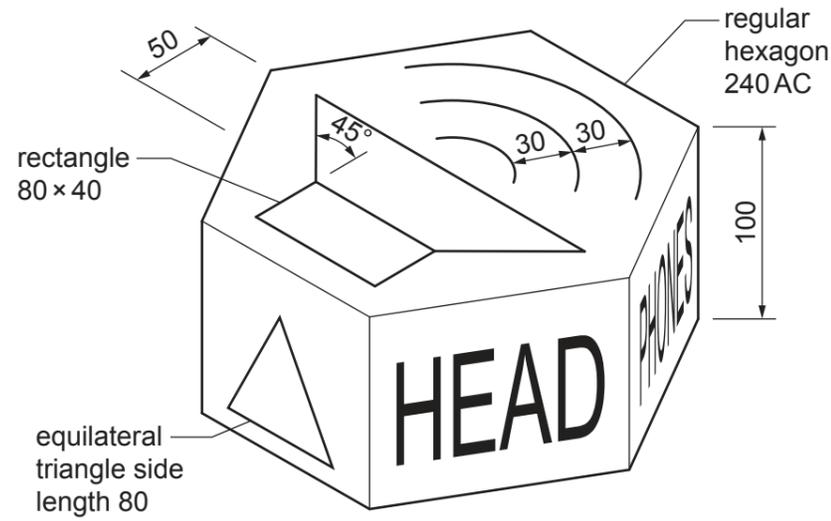


**Section A**  
Answer **all** questions in this section.

**A1** A package for headphones is shown below.



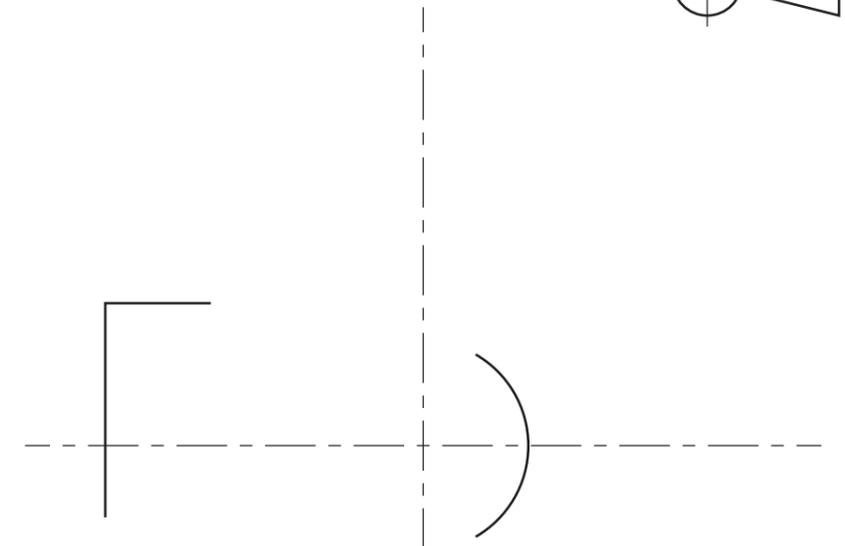
(a) Complete the plan view of the headphone package to a scale of 1:2 by adding:

- (i) the hexagonal outline [3]
- (ii) the speaker symbol [4]
- (iii) the sound wave arcs. [3]

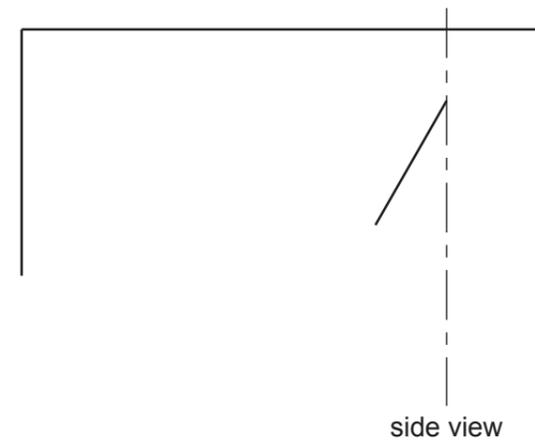
(b) Complete the side view of the headphone package to a scale of 1:2 by adding:

- (i) the outline [3]
- (ii) the equilateral triangle. [2]

(c) Complete the front view of the headphone package to a scale of 1:2. [2]



plan



side view



front view

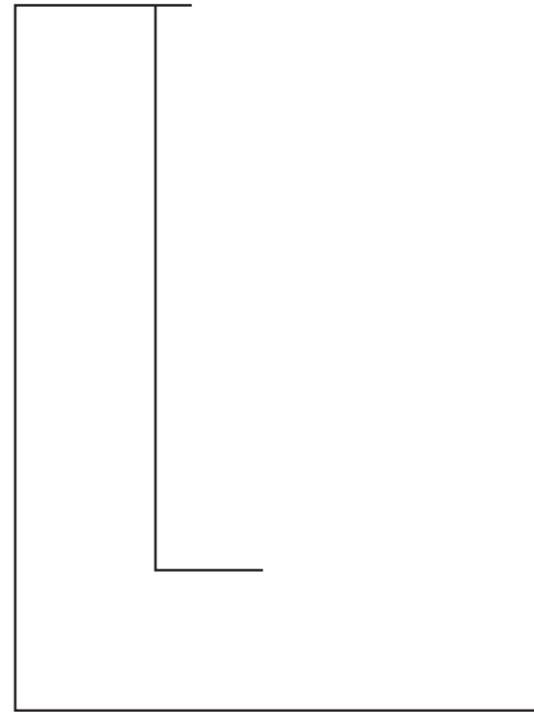
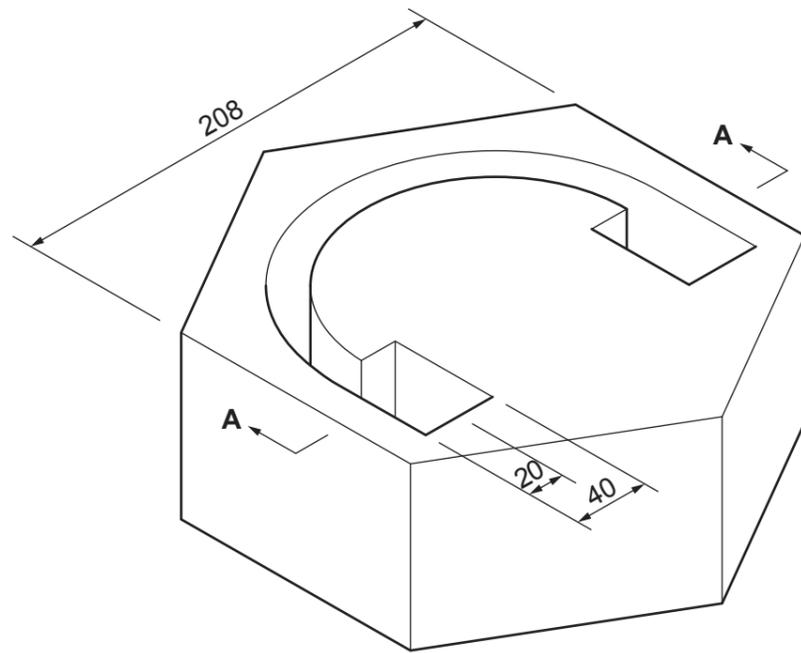
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**0445/51** May/June 2024 **1 hour**  
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Centre Number ..... Candidate Number .....

Candidate Name ..... [Turn over

**A2** A Styrofoam insert to fit inside the headphone package is shown below.

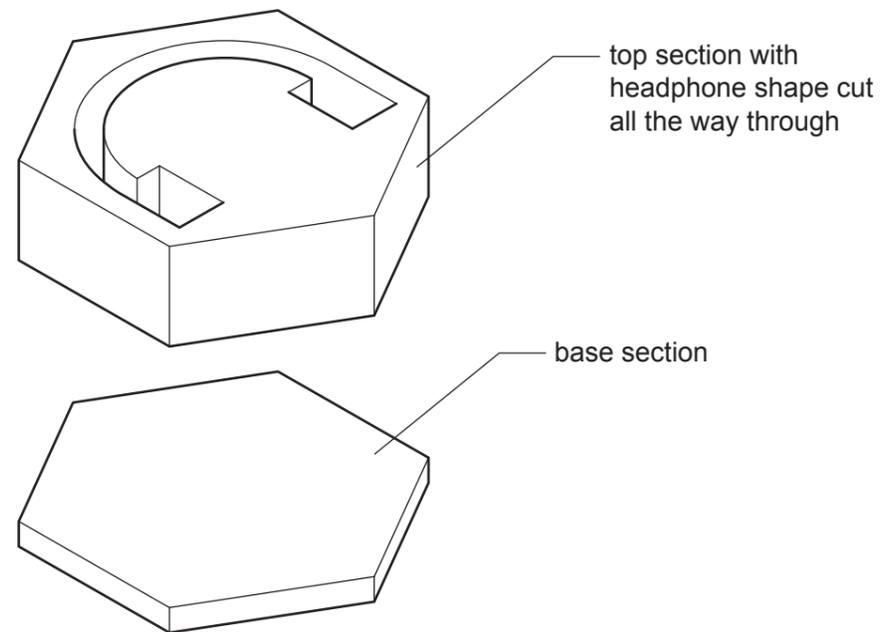


Complete the full-size sectional view **A-A** of the insert.

[5]

sectional view **A-A**

**A3** The insert will be made from two blocks of Styrofoam as shown below.



(a) State **one** reason why Styrofoam is a suitable material for the insert. [1]

.....

(b) The insert will be made using CAD/CAM. [1]

Name **one** item of CAM equipment that could be used to cut the pieces for the insert. [1]

.....

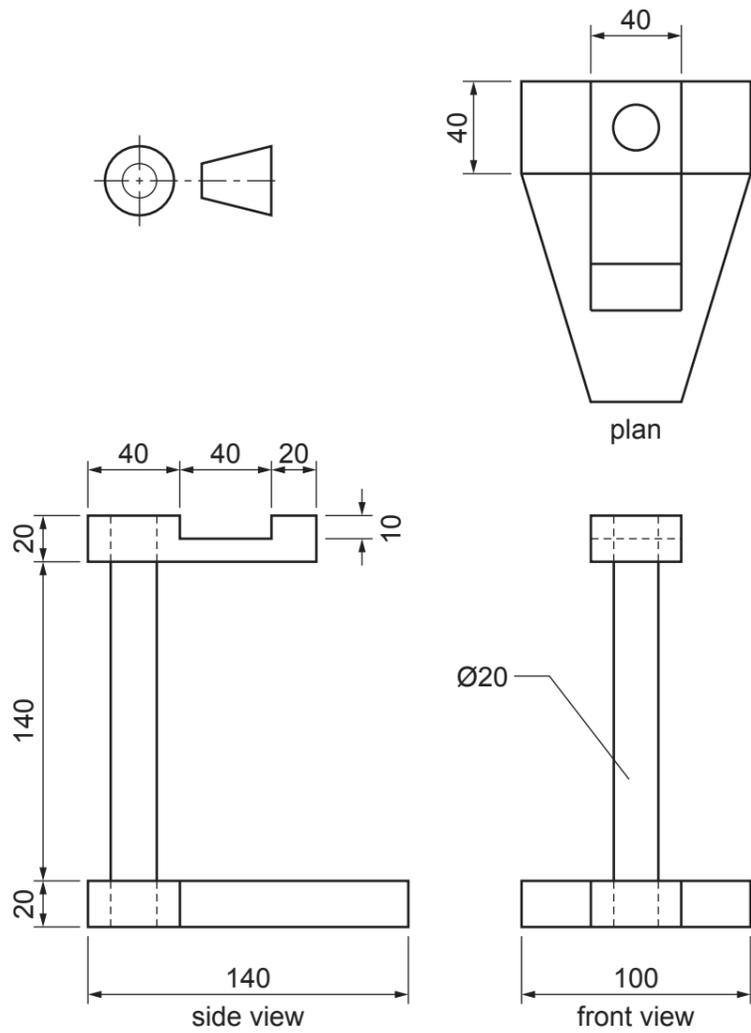
(c) Name **one** adhesive that could be used to stick the two Styrofoam pieces together. [1]

.....

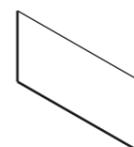
**Section B**

Answer **one** question, **either** Question **B4** or **B5**, from this section.

**B4** Orthographic views of a headphone stand are shown below.

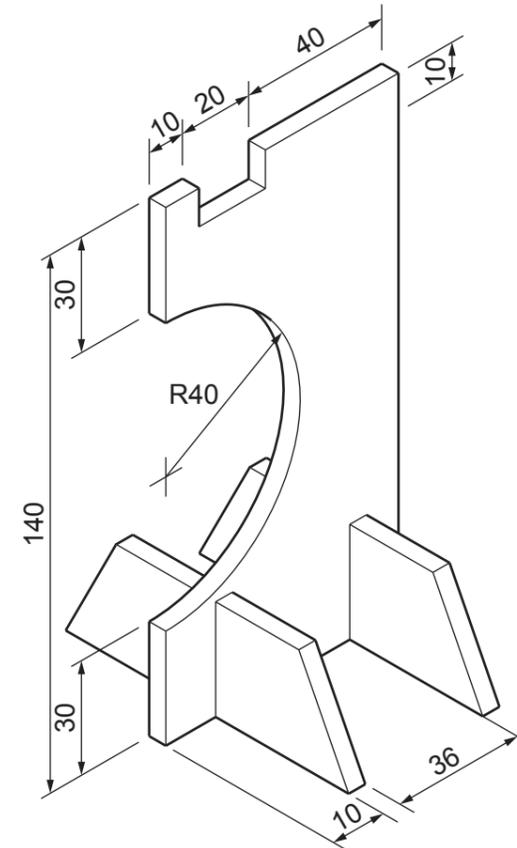


(a) Complete the exploded isometric view of the headphone stand to a scale of 1:2. [12]



(b) A design for another headphone stand is shown below.

The headphone stand is to be made from three pieces of 6 mm acrylic that slot together.



Part	Drawing
Base Quantity: ..... <b>2</b> .....	
Upright Quantity: ..... <b>1</b> .....	

(i) Complete the table above to show the parts needed to make the headphone stand to a scale of 1:2. [7]

(ii) A half-size model of the headphone stand is to be made before making the final design from acrylic.

State a suitable graphic material that could be used to make the model. [1]

.....

(c) Lettering is to be added to the headphone stand.

(i) Complete the lettering below by adding the missing letters of HEADPHONES. [3]



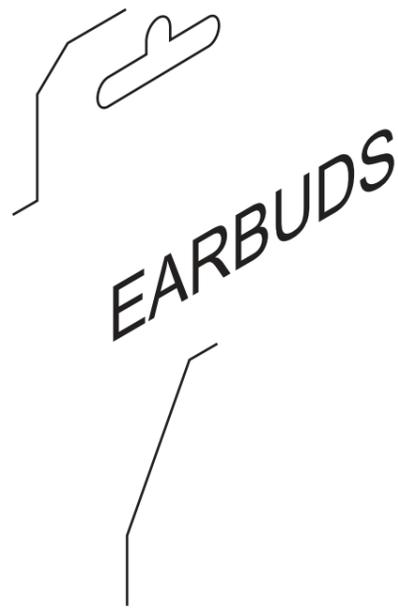
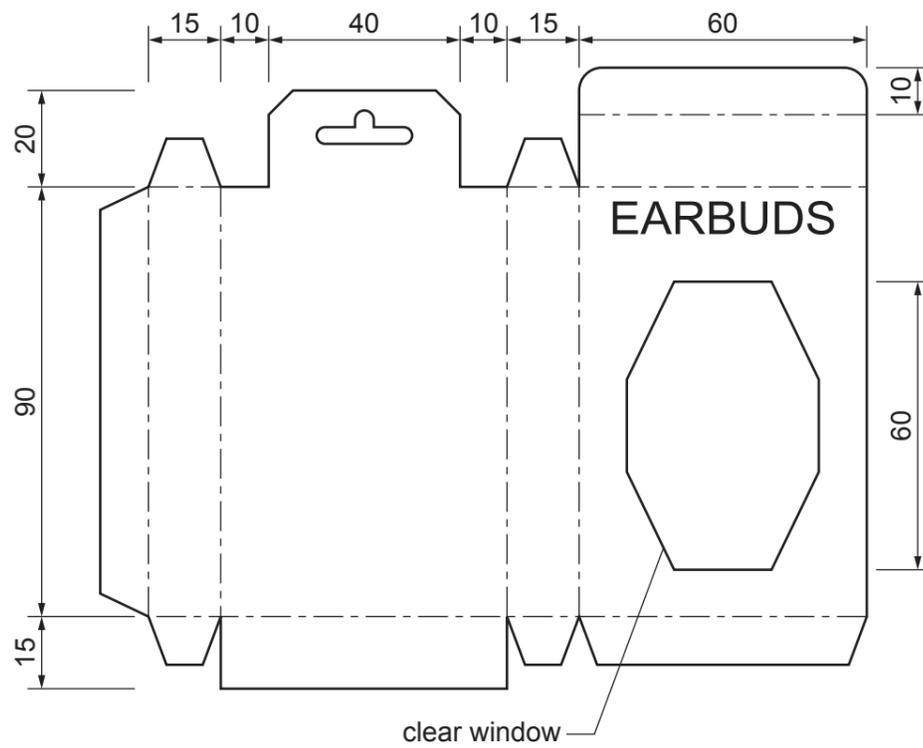
(ii) The lettering will be printed onto the headphone stand using thermochromic ink.

Describe how thermochromic ink works. [2]

.....  
 .....  
 .....

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**B5** A development (net) of an earbuds package is shown below.

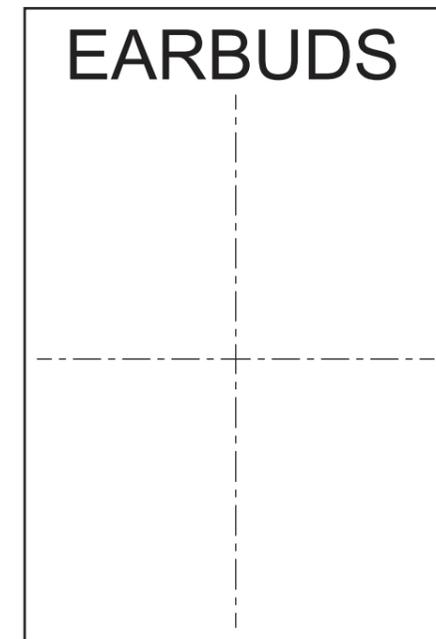


**(b)** The shape of the clear window on the front of the earbud package is to be changed to an ellipse.

Complete the front of the earbud package below by adding the ellipse.

Major axis 70 mm. Minor axis 50 mm.

[6]



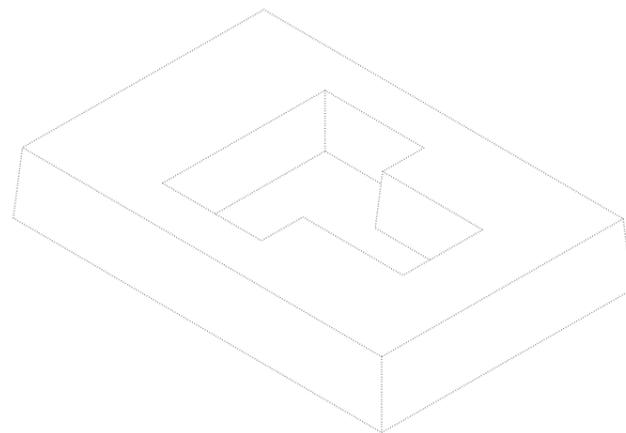
**(a)** Complete the full-size isometric view of the assembled earbuds package.

[10]

**(c)** A vacuum formed insert that will go inside the package is shown below.

**(i)** Apply thick and thin line technique to the insert.

[4]



**(ii)** State a suitable thin sheet plastic that could be used to make the insert.

[1]

.....

**(d)** A diagram of a vacuum forming machine is shown below.

Label the parts A, B, C and D.

[4]

