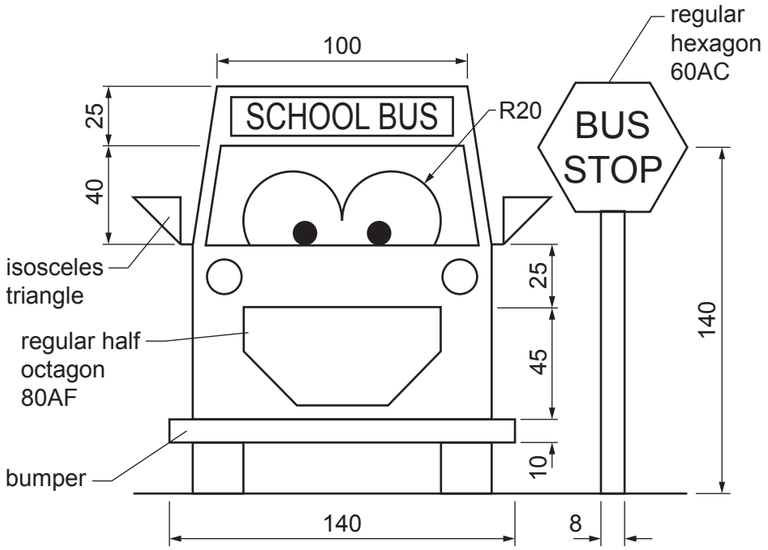
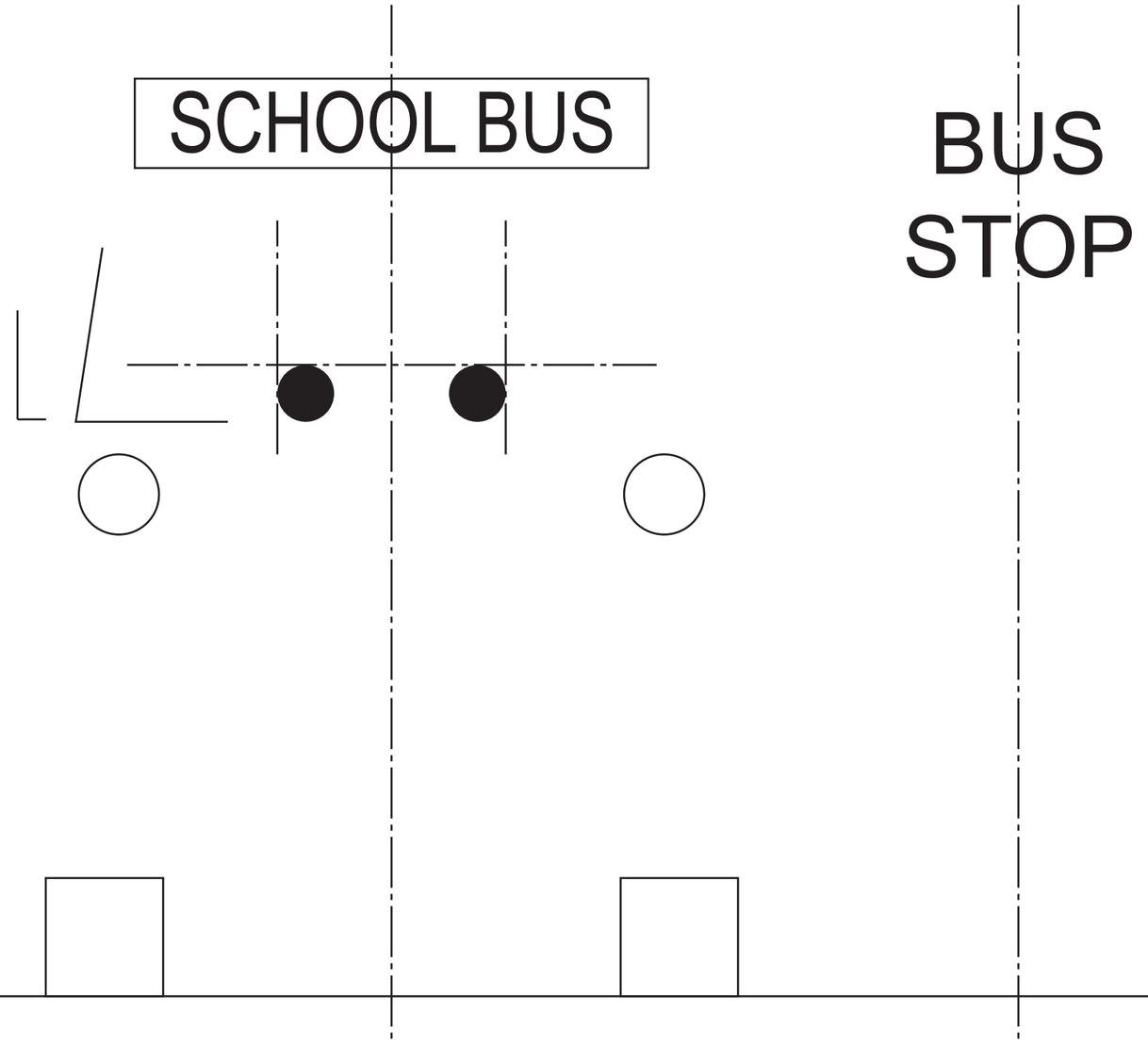
Section A
Answer **all** questions in this section.

A1 A cartoon image of a school bus is shown below.





(a) Complete the full-size drawing of the school bus by adding:

(i) the bumper [2]
(ii) the bus outline [3]
(iii) the windscreen and eyes [2]
(iv) the half octagon [3]
(v) the triangular mirrors. [2]

(b) Complete the full-size drawing of the bus stop sign by adding:

(i) the hexagon [3]
(ii) the post. [1]

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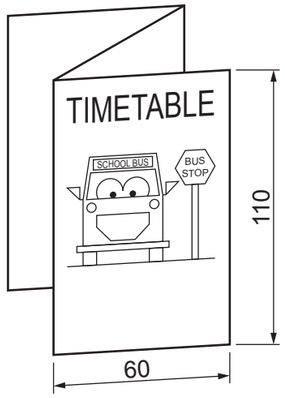
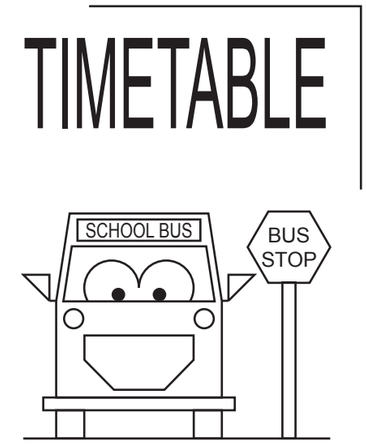
A2 The cartoon image will be used on the front cover of a bus timetable.

The bus timetable is a 3-fold leaflet as shown below.



bus timetable



(a) Complete the full-size development (net) of the bus timetable in the space to the right. [4]

(b) The timetables will be made from thin card in quantities of 5000.

(i) Name **one** suitable method of printing the timetables.

..... [1]

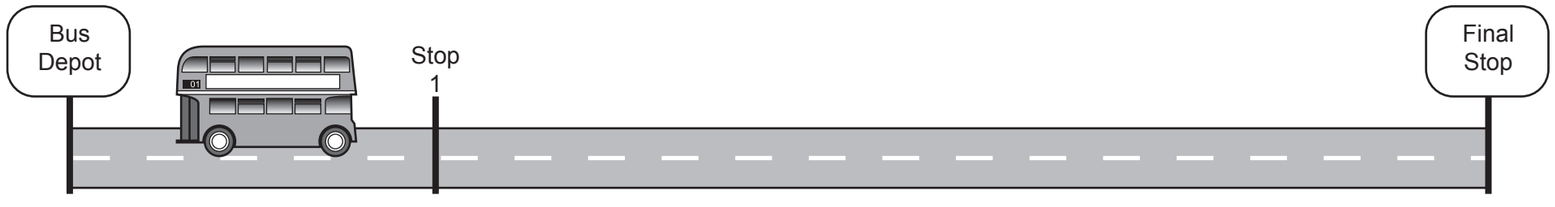
(ii) Name **one** suitable method of cutting out the developments (nets) of the timetables.

..... [1]

A3 A diagram is used to show the distance between each stop along the bus journey.

Add the missing stops to the diagram using the information in the table below. [3]

Journey	Distance between stops
Bus Depot to Stop 1	3.0 km
Stop 1 to Stop 2	0.9 km
Stop 2 to Stop 3	1.9 km
Stop 3 to Stop 4	2.2 km
Stop 4 to Final Stop	3.7 km



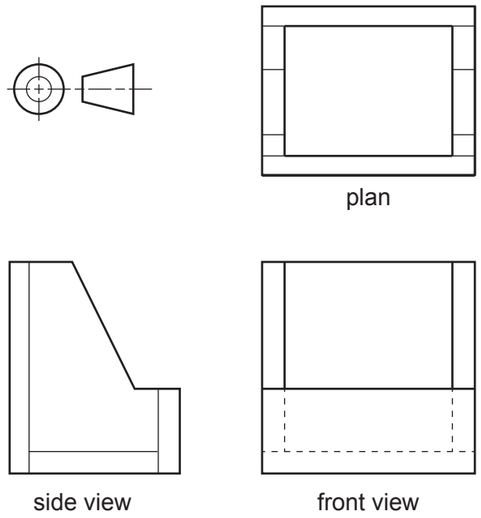
diagram

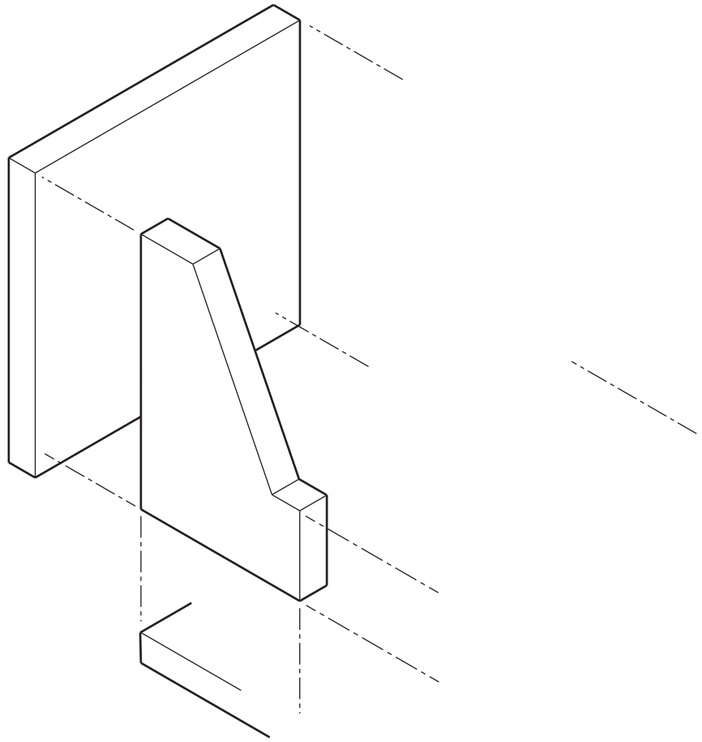
Scale: 20 mm = 1 km

Section B

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

B4 Orthographic views of a design for a timetable holder are shown below.



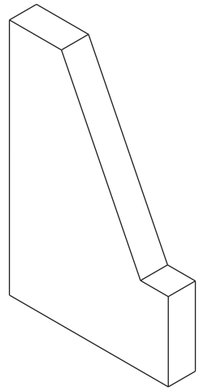

exploded view

(a) Complete the exploded view of the holder. [11]

(b) The timetable holder will be made from 10 mm clear acrylic.

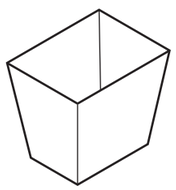
One side of the holder is shown below.

Render the side to look like clear acrylic. [3]



(c) An alternative design for the timetable holder is shown below.

The timetable holder is vacuum formed from thin plastic.



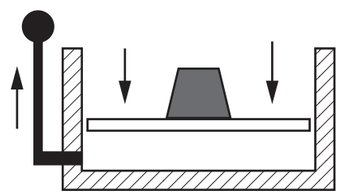
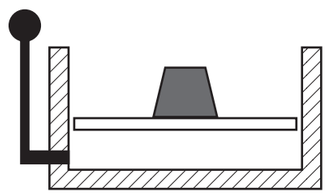
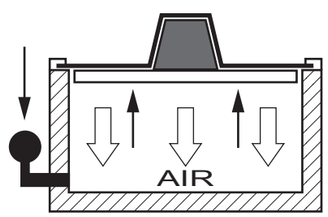
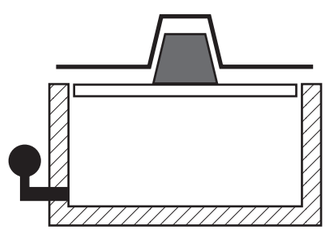
Name a suitable plastic for the timetable holder.

..... [1]

(d) Complete the table showing the stages of the vacuum forming process by adding:

(i) sketches to show the missing details of stage 2 [3]

(ii) the missing description of stage 3. [3]

1.	Place mould in vacuum former and lower the bed	2.	Clamp the plastic sheet in place and heat until soft
			
3.	....	4.	Turn off vacuum, wait for plastic to cool, then unclamp and remove
			

(e) After vacuum forming, the timetable holder needs to be trimmed to size.

(i) Complete the table by adding a suitable tool/item of equipment for each stage of the process. [2]

Process	Tool/item of equipment
Trimming off the excess plastic	
Smoothing the cut edges	

(ii) In use, the vacuum formed timetable holder falls over too easily.

Sketch a modification to the design of the timetable holder that will prevent it from falling over. [2]

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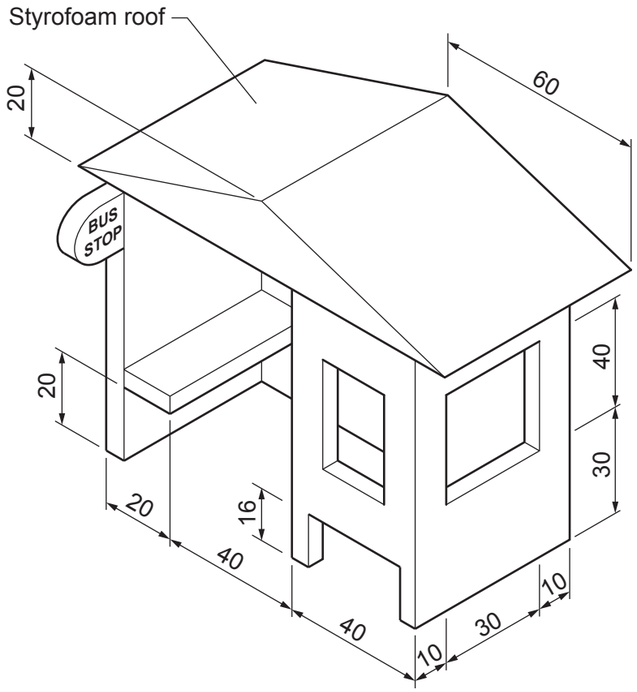
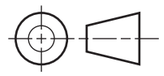
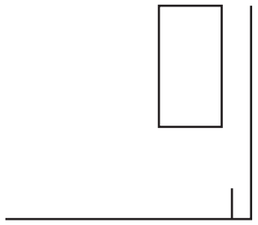
B5 An isometric view of a model bus shelter is shown below.

The model is made from 6 mm foamboard sheet with a Styrofoam roof.

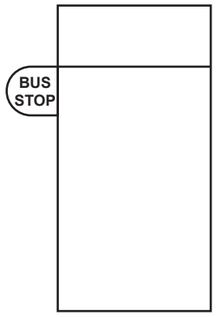




plan



front view



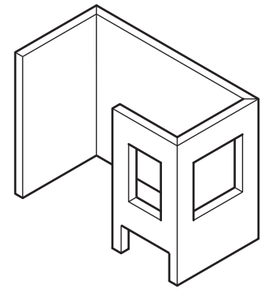
side view

(a) Complete the orthographic views of the bus shelter to a scale of 1:2. [12]

(b) The walls of the model bus shelter will be made from one piece of foamboard.

The foamboard will be folded into shape as shown below.

(i) Sketch a method of folding the foamboard to an angle of 90°. [3]

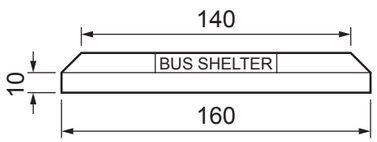


(ii) Name a suitable adhesive that could be used to join the Styrofoam roof onto the foamboard walls.

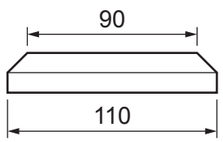
..... [1]

(c) The model bus shelter will be mounted onto a 20 mm thick Styrofoam base.

Orthographic views of the base are shown below.

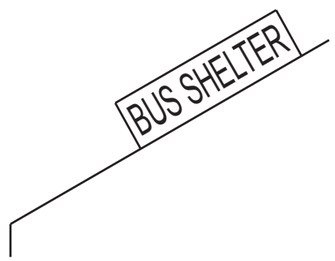


front view



side view

Complete the isometric view of the base to a scale of 1:2. [5]



isometric view

(d) The BUS SHELTER label is to be made from self-adhesive vinyl using CAD/CAM.

(i) Describe how the lettering would be applied to the base once it has been produced on a vinyl cutter.

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..... [3]

(ii) State **one** method of accurately applying the BUS SHELTER text to the base without the use of CAD/CAM.

..... [1]