

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
TOTAL	



General Certificate of Secondary Education  
June 2012

# Design and Technology: 45501 Graphic Products

Unit 1 Written Paper

Tuesday 29 May 2012 1.30 pm to 3.30 pm

**For this paper you must have:**

- a black fine-line pen or black ball-point pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

**Time allowed**

- 2 hours

**Instructions**

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this answer book. Cross through any work you do not want to be marked.

**Information**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The questions in Section A relate to the context referred to in the Preliminary Material that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in Question 5 (a).



J U N 1 2 4 5 5 0 1 0 1

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**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**



**Section A**

Answer this question in the spaces provided.

Section A is about designing.

You are advised to spend about 35 minutes on this question.

**Design Theme: Collecting money for charities**

1 Study the Design Brief and Specification below.

**Design Brief**

A local charity called 'Streetsafe' wants to raise money to support young people within the community.

**Design Specification**

Design a charity collection box to help collect donations from the public.

The charity collection box must:

- be easy to construct from a one piece surface development (net)
- be easy to insert money through a slot
- be able to be manufactured from a suitable sheet material.

**Question 1 continues on the next page**

**Turn over ►**



The Design Specification from page 3 is repeated opposite.

- 1 (a)** Sketch with notes **two** imaginative and creative ideas for a charity collection box. Your sketches and notes should clearly show constructional details.

Marks will be awarded for:

- **two** different ideas that meet the Design Specification (2 x 3 marks)
- quality of sketching (5 marks)
- creative ideas (3 marks)
- annotation of ideas. (2 marks)

Do **not** include any surface decoration or colour.

**Idea 1**



**Design Specification**

Your idea for a charity collection box must:

- be easy to construct from a one piece surface development (net)
- be easy to insert money through a slot
- be able to be manufactured from a suitable sheet material.

**Idea 2**

**Turn over ►**

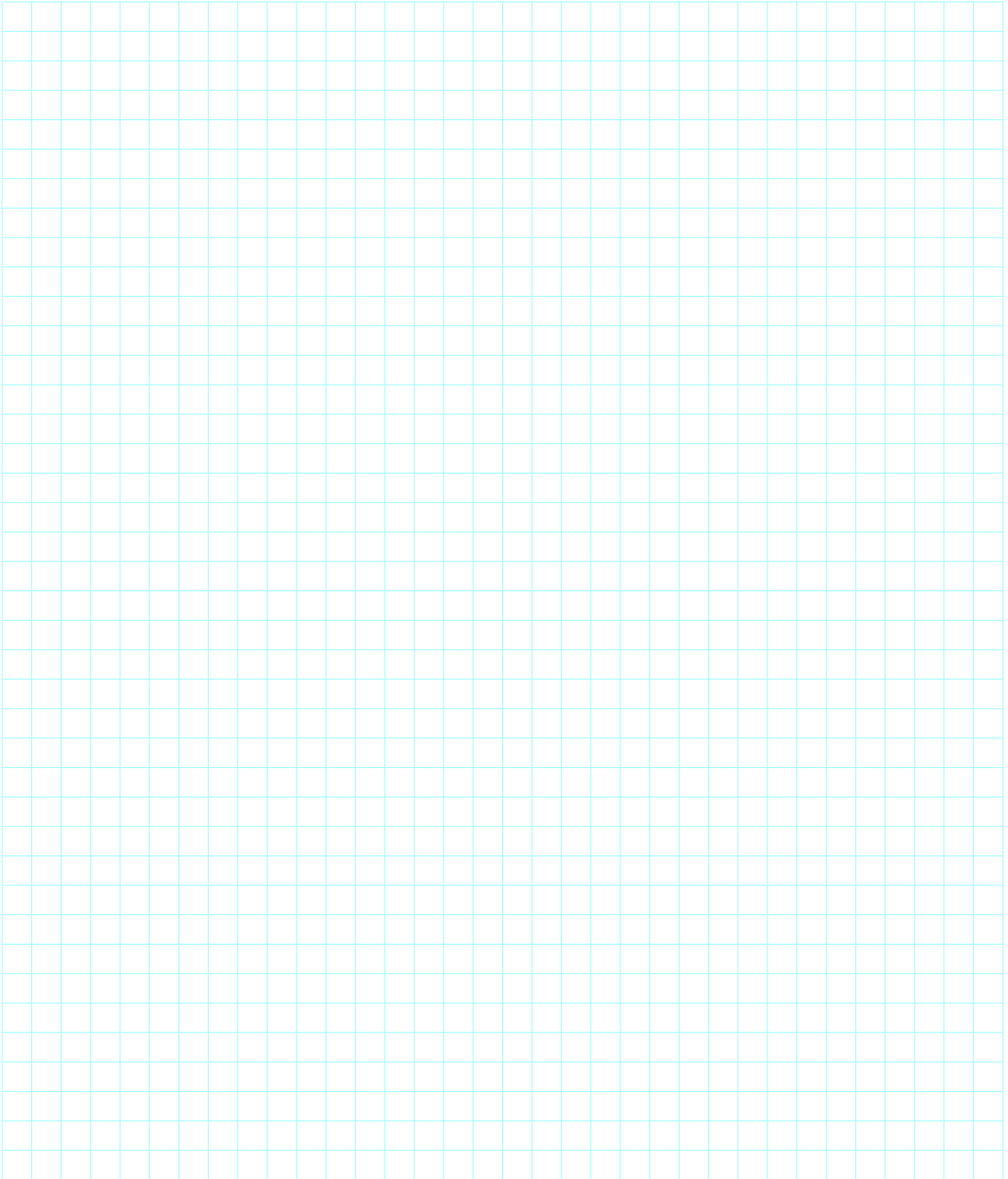


1 (b)

Draw a surface development (net) for **one** of your charity box collection ideas from part (a) showing the method of construction.

You **must** include the money slot.

Key	
Glue area	● ● ●
Cut line	_____
Fold line	-----



(7 marks)

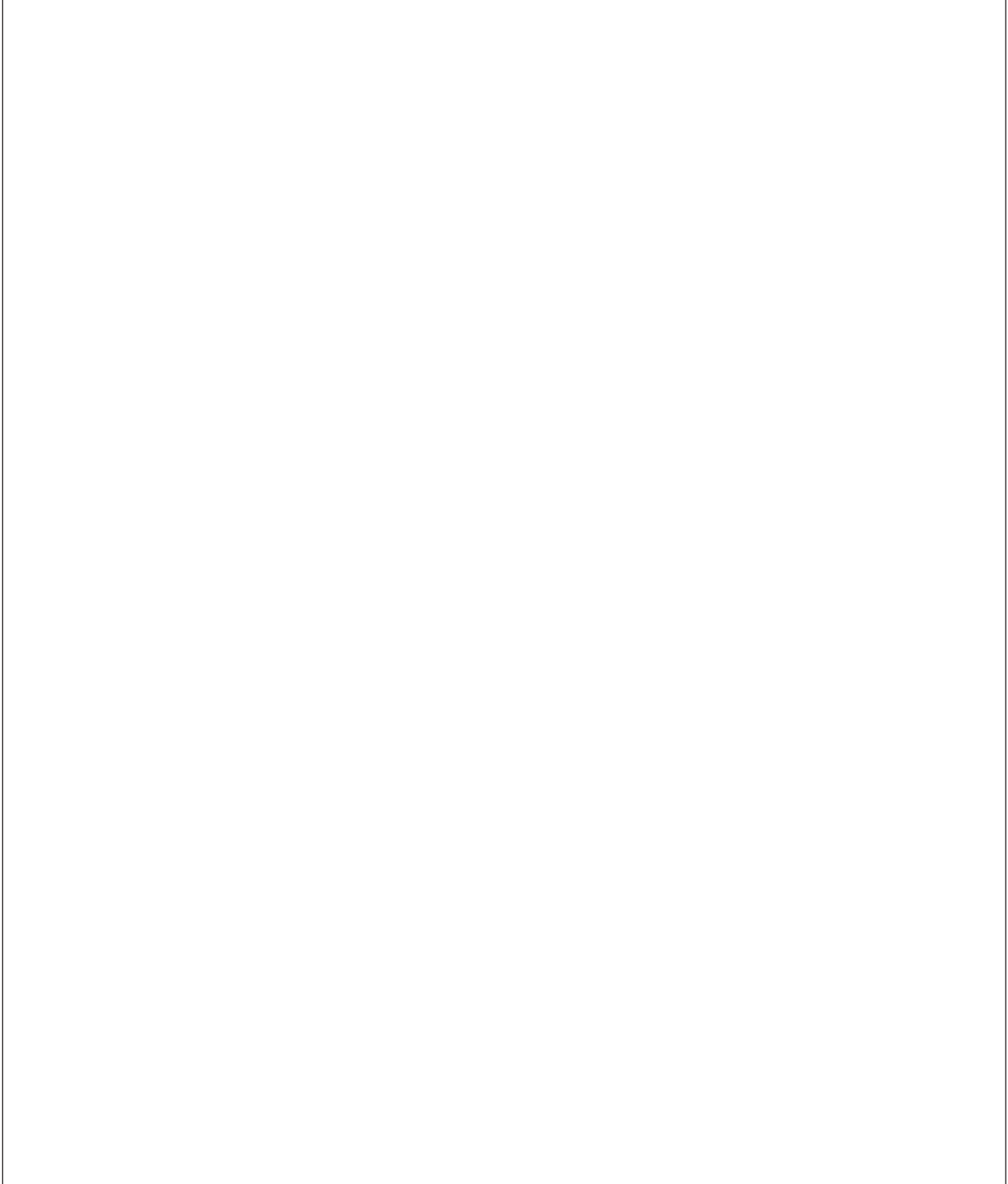


**1 (c)** Produce a 3-D drawing of your assembled charity collection box from part (b).

Include some surface decoration (image) on **one** panel.

Marks will be awarded for:

- including the name of the charity 'Streetsafe' in a suitable letter style
- including an image suitable for the charity
- an indication of colour on one panel.



(9 marks)

Turn over ►



**1 (d)**

Evaluate your surface decoration (image) from part (c) on page 7, for its suitability for the 'Streetsafe Charity'.

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*(3 marks)*

<b>35</b>





**Section B**

Answer **all** questions in the spaces provided.

This question is about modelling materials.

You are advised to spend about 10 minutes on this question.

**2** Below is a list of Graphic Products modelling materials commonly used in a graphics studio.

Complete the table below.

Some of the boxes have been completed. Do not repeat your answers.

Material	Use	Advantage	Disadvantage	Health and Safety	Biodegradable (Yes or No)
Styrofoam	Block modelling	Excellent for three dimensional modelling	..... ..... ..... ..... (1 mark)	..... ..... ..... ..... (1 mark)	No
Card	Packaging	..... ..... ..... ..... (1 mark)	..... ..... ..... ..... (1 mark)	Always use a cutting mat	..... (1 mark)
Fluted board	Point of Purchase boxes	..... ..... ..... ..... (1 mark)	Difficult to bend or poor printing surface	..... ..... ..... ..... (1 mark)	..... (1 mark)

Turn over ►

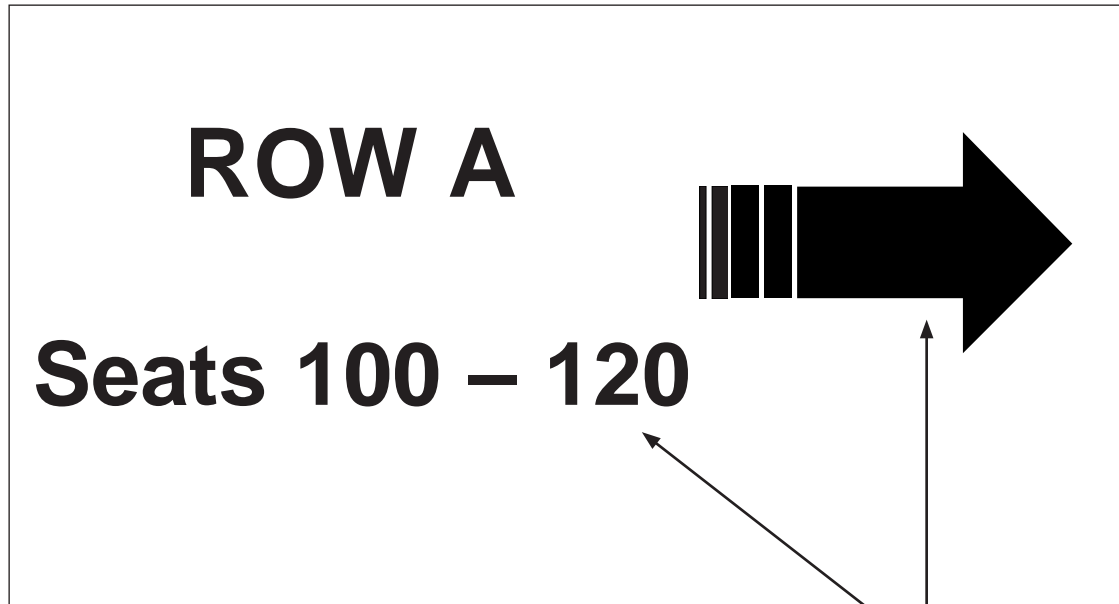


This question is about Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM).

You are advised to spend about 25 minutes on this question.

- 3 A graphic signage company has produced a range of directional seating signs for a pop concert in a large indoor arena.

An example is shown below.



Black self adhesive vinyl lettering on a clear acrylic sign

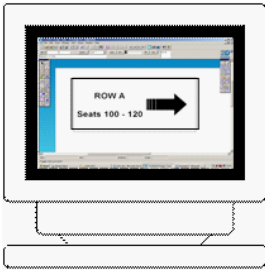


**3 (a)** Using sketches and notes clearly show how you would design, cut and stick images to a sheet of acrylic.

At each stage, name the equipment or software you would use.

Stage 1 has been completed for you.

Stage 1: Design lettering and arrow using Computer-Aided Design (CAD) programme



*2-D Design computer software*

Stage 2: Cut lettering and arrow using Computer-Aided Manufacturing (CAM)

*(4 marks)*

Stage 3: Weeding (removing unwanted vinyl)

*(4 marks)*

**Question 3 (a) continues on the next page**

**Turn over ►**



Stage 4: Use low tack film to lift the vinyl lettering and arrow off the backing film

*(4 marks)*

Stage 5: Position the lettering and arrow before removing the low tack film to reveal the final sign

*(4 marks)*



**3 (b) (i)** Give **two** advantages of CAD.

1 .....

.....

2 .....

.....

(2 marks)

**3 (b) (ii)** Give **two** disadvantages of CAD.

1 .....

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2 .....

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(2 marks)

**3 (c)** 'Smart materials' are sometimes used in the printing of concert tickets.

Name a suitable smart material and explain how it might help to make sure tickets are genuine.

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(4 marks)

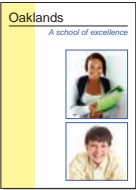






This question is about types of printing.

You are advised to spend about 20 minutes on this question.

4 (a) Study the types of printing on the products shown in the table below.

Complete the table. Some of the boxes have been completed.

Graphic product	Method of printing	Reason for choice	Print run (circle the correct answer)
<p>School brochure</p> 	<p>Digital printing</p>	<p>Batch produced for high quality printing.</p>	<p>Short run Medium run High run</p>
<p>Aluminium drinks flask</p> 	<p>..... .....</p> <p>(1 mark)</p>	<p>Non-absorbent aluminium surface.</p>	<p>Short run Medium run High run</p> <p>(1 mark)</p>
<p>1st class stamp</p> 	<p>Gravure</p>	<p>..... ..... ..... .....</p> <p>(2 marks)</p>	<p>Short run Medium run High run</p> <p>(1 mark)</p>
<p>T-shirt</p> 	<p>..... ..... .....</p> <p>(1 mark)</p>	<p>..... ..... ..... .....</p> <p>(2 marks)</p>	<p>Short run Medium run High run</p> <p>(1 mark)</p>
<p>Sweet packaging</p> 	<p>..... ..... .....</p> <p>(1 mark)</p>	<p>..... ..... ..... .....</p> <p>(2 marks)</p>	<p>Short run Medium run High run</p> <p>(1 mark)</p>



**4 (b)** All coloured pictures printed in books and magazines are made up of four process colours.

Name the four printing process colours.

1 .....

2 .....

3 .....

4 .....

(4 marks)

**4 (c)** What is the full name of the printing process shown below?

.....

.....

(2 marks)

The image of the printing process has been removed for copyright purposes.  
The full version of the paper can be ordered through AQA Publications.

**Question 4 continues on the next page**

**Turn over ►**



**4 (d)** Give **two** reasons why it is necessary to check the first few pages which are taken off the printing process.

For each reason explain how the checking is done.

**Reason 1** .....

.....

(1 mark)

**Explanation** .....

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(1 mark)

**Reason 2** .....

.....

(1 mark)

**Explanation** .....

.....

(1 mark)

23





**Turn over for the next question**

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ANSWER IN THE SPACES PROVIDED**

**Turn over ►**



This question is about the environment.

You are advised to spend about 12 minutes on this question.

Quality of Written Communication will be tested in part (a) of this question.

**5** A popular chocolate dessert is shown below.



**5 (a)** Some products are criticised by the public because they are 'over packaged'.

Explain what is meant by the term 'over packaging'.

Use examples to support your answer.

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(8 marks)

**5 (b)** The following mark appears on some products. What does it stand for?

**TM**

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(1 mark)

**5 (c)** Study the following symbol which appears on some product packaging.



Give its exact meaning and an example where it might be found.

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(3 marks)

12

Turn over ►



This question is about branding.

You are advised to spend about 18 minutes on this question.

**6** Companies use graphic design to promote their products and create brands.

**6 (a)** Which of the following designers is best known as a *brand consultant*?

Circle the correct answer.

**Wally Olins**

**Alberto Alessi**

(1 mark)

**6 (b)** One of the designer's tasks was to rebrand The Peninsular and Oriental Steam Navigation Company into a modern transport company which is now known as P&O.

Study two of their logos shown below.

These logos have been removed for copyright purposes.  
The full version of the paper can be ordered through  
AQA Publications.

**6 (b) (i)** What 'message' do the colours on the P&O logos communicate to the public?

Explain your answer.

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(3 marks)



6 (b) (ii) Why do you think the letter style, shown on the logos on page 20, was chosen?

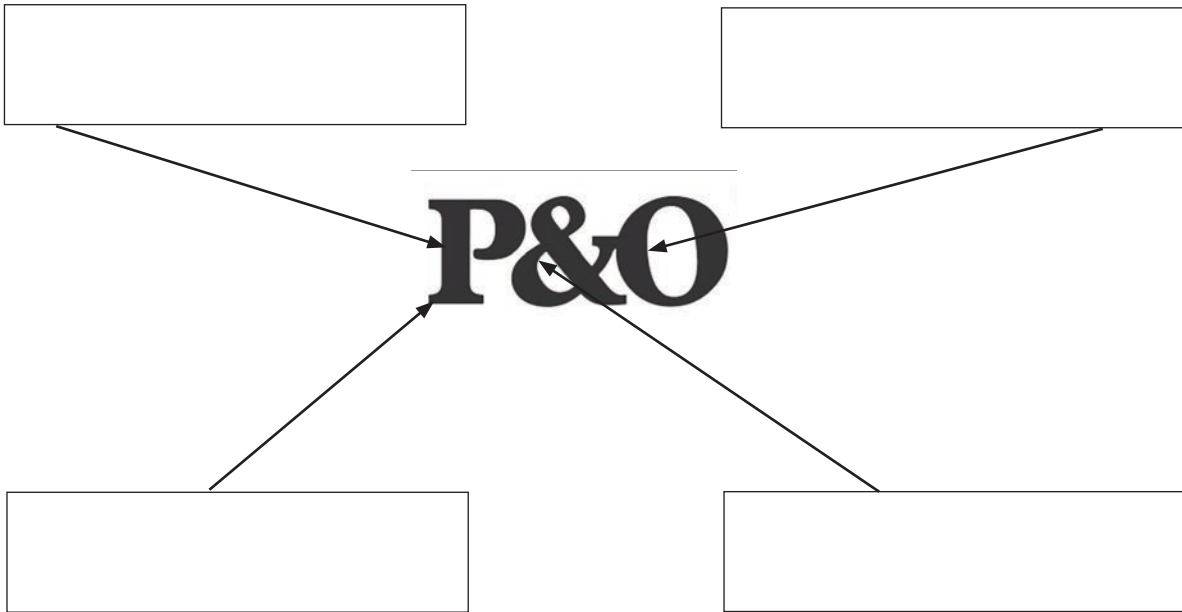
.....  
.....  
.....  
.....

(2 marks)

6 (b) (iii) On the given letters shown below, label the parts indicated.

You should choose from the following terms and write your answers in the correct box.

<b>Serif</b>	<b>Stem</b>	<b>Curve</b>	<b>Continuous curve</b>
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(4 marks)

Question 6 continues on the next page

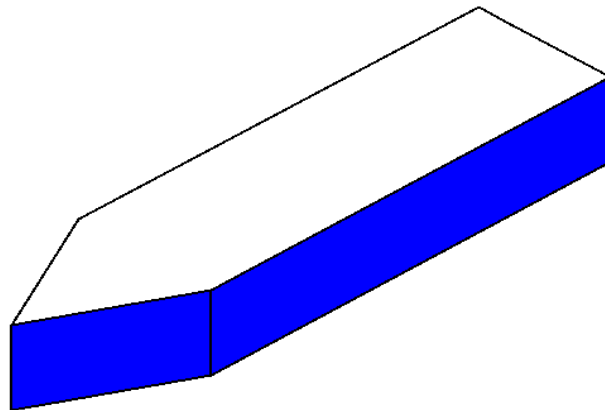
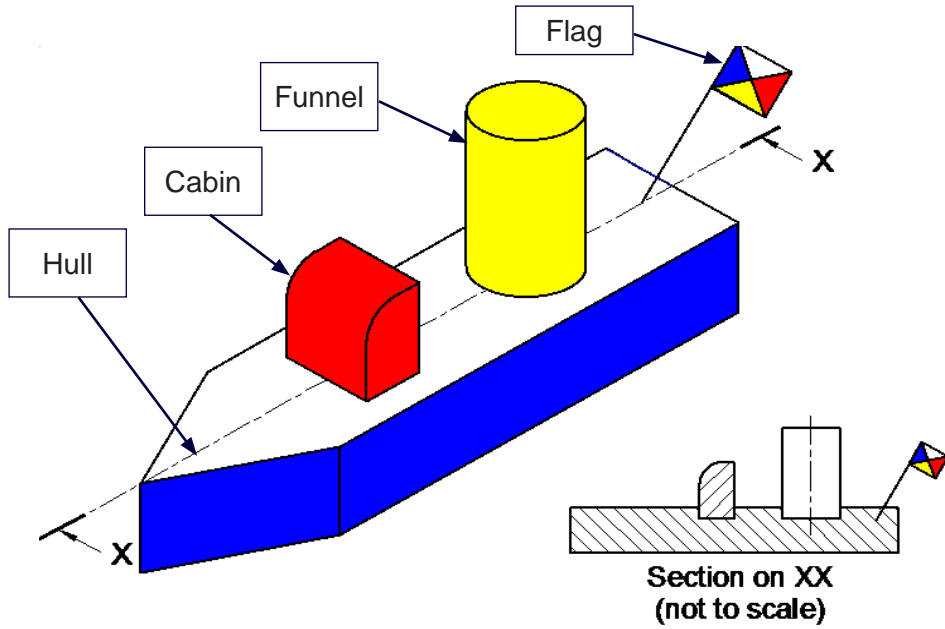
Turn over ►



6 (c)

P&O Ferries gives away a free toy boat to all the young children who sail on one of their ferries. The toy boat is shown below.

In the space below draw an exploded sketch of the toy boat. It has been started for you. Do not include colour.



END OF QUESTIONS

(8 marks)

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