



Rewarding Learning
ADVANCED SUBSIDIARY (AS)
 General Certificate of Education
 2018

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Technology and Design

Assessment Unit AS 1
assessing
 Design and Materials



STE11

[STE11]

MONDAY 14 MAY, AFTERNOON

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Answer **all seven** questions.

Answers to Question **7(a)** and **7(b)** should be made on the blank A4 pro forma answer pages provided.

INFORMATION FOR CANDIDATES

The total mark for this paper is 40.

Marks for quality of written communication will be awarded for Question **6**.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
Total Marks	

Design and Materials

Answer **all** questions

1 Electrical and thermal conductivity are classified as physical properties.

(a) Explain what is meant by the term electrical conductivity and give **one** specific example of a product which requires this property.

Explanation: _____

_____ [2]

Example: _____

_____ [1]

(b) Explain what is meant by the term thermal conductivity and give **one** specific example of a product which requires this property.

Explanation: _____

_____ [2]

Example: _____

_____ [1]

Examiner Only

Marks Remark

4 Injection moulding is a process which may be used to manufacture cases for computer monitors and vacuum cleaners.

(a) Give **one** main reason why the injection moulding process may be used to manufacture these cases.

_____ [1]

(b) In the space below, draw a detailed annotated sketch of the injection moulding process.

[4]

Examiner Only	
Marks	Remark

5 Thermochromic materials, photochromic materials and graphene are considered as modern materials.

(a) Distinguish between a thermochromic material and a photochromic material.

[2]

(b) Give **two** main properties of graphene which make it suitable for use in phones.

1. _____ [1]

2. _____ [1]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

7 Fig. 1 shows a photograph of a warning triangle and a high visibility vest.

The warning triangle was prone to blowing over in windy conditions. With the aid of annotated sketches, using the blank A4 pro forma answer page (**answer number 7(a)**) produce an appropriate design for the following:

(a) A means of preventing the warning triangle from blowing over in windy conditions. Your design should be compact, lightweight and allow the user to quickly attach it to the legs of the warning triangle. [5]

On the back of the warning triangle a high visibility vest is to be located as part of a basic kit for the motorist. With the aid of annotated sketches, using the blank A4 pro forma answer page (**answer number 7(b)**) produce an appropriate design for the following:

(b) A means of securing the high visibility vest to the back of the warning triangle when it is folded or rolled up. Show how your design would be attached to the acrylic section forming the triangular shape. [5]

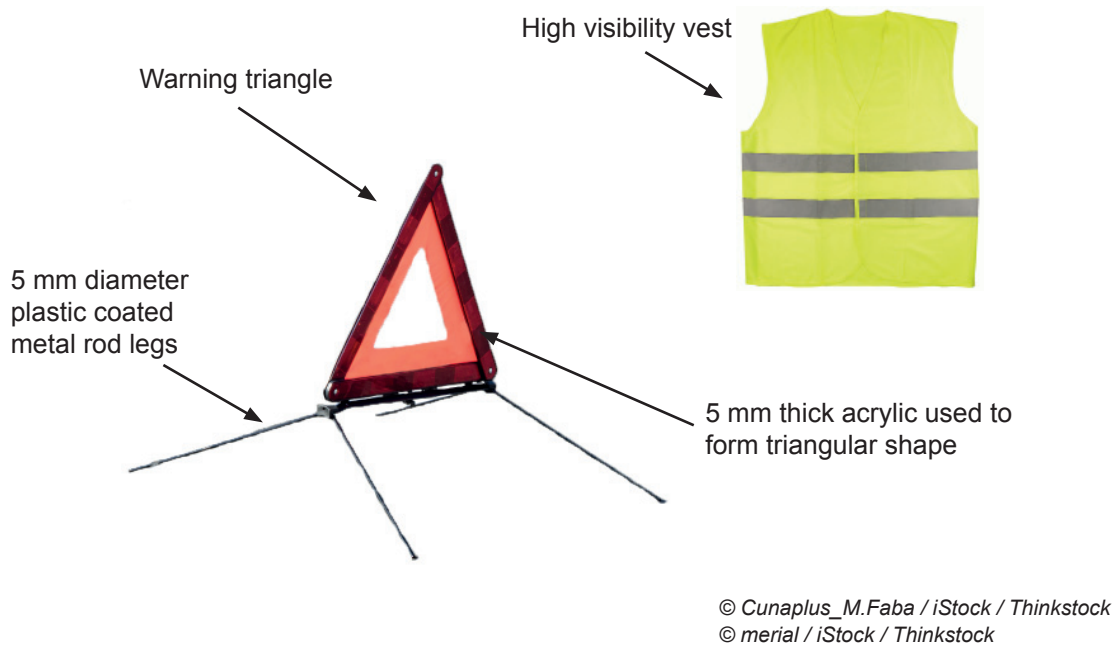


Fig. 1

A4 pro forma answer page (answer number **7(a)**)

A4 pro forma answer page (answer number **7(b)**)

THIS IS THE END OF THE QUESTION PAPER

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA
will be happy to rectify any omissions of acknowledgement in future if notified.