



Rewarding Learning
ADVANCED SUBSIDIARY (AS)
 General Certificate of Education

Centre Number

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Candidate Number

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Technology and Design

Assessment Unit AS 1
assessing
 Design and Materials



STE11

[STE11] Assessment

TIME

1 hour.

Assessment Level of Control:

Tick the relevant box (✓)

Controlled Conditions	
Other	

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 Questions **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	
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Design and Materials

Answer **all** questions

1 Elasticity, toughness and hardness are classified as mechanical properties.

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

Explanation: _____

_____ [2]

Example: _____
_____ [1]

(b) Distinguish between the properties of toughness and hardness.

_____ [2]

Examiner Only	
Marks	Remark

4 An internal report reflecting on the design practice of a mobile phone company suggested that more emphasis should be placed on creativity and product review and testing.

(a) Explain what is meant by the term creativity.

[2]

(b) Give **two** main reasons why it might be important for the company to focus on product review and testing.

1. _____

[1]

2. _____

[1]

Examiner Only	
Marks	Remark

5 Polyether ether ketone (PEEK) and polyphenylsulfone (PPSU) are classified as modern materials.

(a) Briefly outline **two** specific properties associated with PEEK.

1. _____
_____ [1]

2. _____
_____ [1]

(b) State **one** specific application for the use of polyphenylsulfone (PPSU) and briefly outline **one** main specific property associated with PPSU which would make it suitable for your chosen application.

Application for PPSU: _____
_____ [1]

Specific property: _____
_____ [1]

Examiner Only	
Marks	Remark

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(Questions continue overleaf)

6 In industry, computer-integrated manufacture (CIM) is widely used in the design and manufacture of components and products.

With reference to a product of your choice, explain how CIM may be used to its full potential for each of the following:

- Quality control;
- Manufacturing; and
- Assembly.

[8]

Quality of written communication will be assessed in this question.

Quality control:

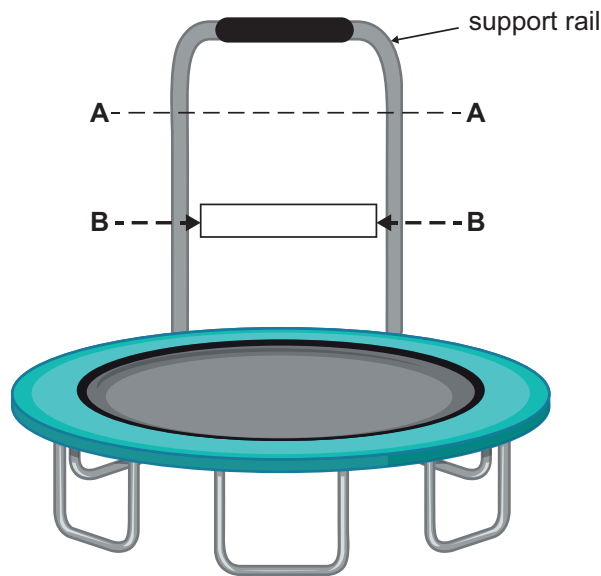
Manufacturing:

Examiner Only	
Marks	Remark

Assembly:

Examiner Only	
Marks	Remark

- 7 The mini trampoline, as shown in **Fig. 2** below, is a lightweight, compact product which encourages children to engage in active play.



Source: © Getty Images

Fig. 2

In order to accommodate different sizes of children using the trampoline, the support rail needs to be adjustable. Using the blank A4 pro forma answer page (**answer number 7(a)**) produce an appropriate design for the following:

- (a) A suitable design that will allow an adult to quickly extend the length of the support rail (at the position shown in **Fig. 2 (A – A)**) to accommodate different heights of children using the trampoline. [5]

In order to enhance the product's appeal to children, it has been suggested that a customised board with promotional graphics could be attached to the support rail (at the position shown in **Fig. 2 (B – B)**). Using the blank A4 pro forma answer page (**answer number 7(b)**) produce an appropriate design for the following:

- (b) A design which will allow the user to quickly insert or remove a 2 mm thick promotional graphics board. Your design must be securely and safely fastened to the support rail (at the position shown in **Fig. 2 (B – B)**). [5]

Examiner Only	
Marks	Remark

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

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