



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2017

Centre Number

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Candidate Number

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Technology and Design

Assessment Unit AS 1
assessing
Design and Materials

MV18

[STE11]

MONDAY 22 MAY, MORNING

Time

1 hour, plus your additional time allowance.

Instructions to Candidates

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

Answer **all seven** questions.

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 at the end of each question indicate the marks awarded to each question or part question.

Design and Materials

Answer **all** questions

- 1 Explain what is meant by each of the following terms.
[2 marks for each term]

(a) Factor of safety: _____

(b) Tolerance of a component: _____

- 2 Stainless steel is used in the manufacture of cutlery.

(a) Give **two** properties of stainless steel which make it specifically suitable for cutlery. [1 mark for each]

1. _____
2. _____

(b) Cutlery is quite often electroplated. State **two** main reasons for electroplating cutlery. [1 mark for each]

1. _____
2. _____

3 Plywood and Medium Density Fibreboard (MDF) are examples of manufactured boards.

(a) Give **one** specific application for the use of plywood and outline **one** main advantage of plywood which makes it suitable for your chosen application. [1 mark for each]

Application: _____

Advantage: _____

(b) Give **one** specific application (different from the application provided in part (a)) for the use of MDF and outline **one** main advantage of MDF which makes it suitable for your chosen application. [1 mark for each]

Application: _____

Advantage: _____

4 Thermoplastic and thermosetting plastics are commonly used in everyday products.

(a) Explain the difference between thermoplastic and thermosetting plastics. [2 marks]

(b) Acrylonitrile butadiene styrene (ABS) is an example of a thermoplastic. Give **three** main properties of ABS which make it suitable for use in safety helmets.

[1 mark for each]

1. _____
2. _____
3. _____

- 5** The extrusion process is widely used for the manufacture of plastic pipes.
In the space below, draw a detailed annotated sketch of the extrusion process. [5 marks]

BLANK PAGE

(Questions continue overleaf)

7 Fig. 1 opposite shows photographs of a shopping trolley. It is a low cost product that is suitable for heavy or bulky shopping and folds flat for easy storage when not in use. With the aid of annotated sketches, using the blank pages 10 and 11 (**answer no. 7(a) and 7(b)**), produce appropriate designs for the following:

(a) A quick and easily adjustable method that will allow the user to secure the flap to the front section of the bag at the position shown. This should allow the user to close the bag after making adjustments, if needed, in order to cater for different shopping quantities. [5 marks]

After some use of the product it was noted that the plastic feet, which press onto the tubular frame of the trolley, became loose and detached.

(b) Produce a re-design of the plastic feet shown to enable them to be firmly secured to the tubular frame, whilst providing suitable protection to the frame and the floor surface. [5 marks]

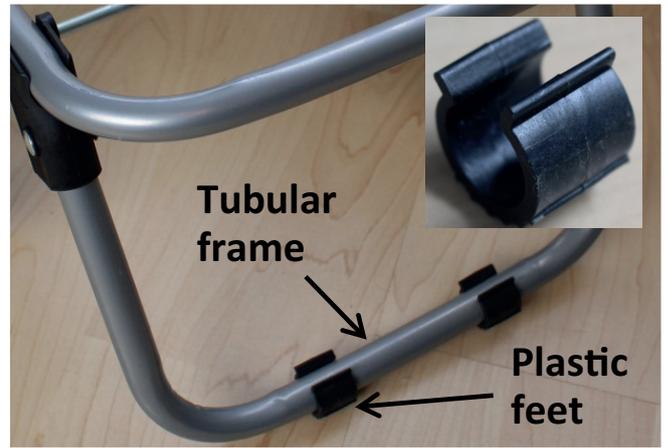


Fig. 1

Answer page (answer number 7(a))

Answer page (answer number 7(b))

THIS IS THE END OF THE QUESTION PAPER

SOURCES

Q7.....Source: Chief Examiner

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

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