

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY**

A564

Resistant Materials

Technical aspects of designing and making

Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:
None

**Wednesday 25 May 2011
Afternoon**

Duration: 1 hour 15 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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MODIFIED LANGUAGE

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- All dimensions are in millimetres.
- Your quality of written communication is assessed in questions marked with an asterisk (*).
- This document consists of **16** pages. Any blank pages are indicated.

Section A

Answer **all** questions.

- 1 Fig. 1 shows views of a photograph holder and stand.
The photograph holder is made from acrylic. The stand is made from oak.

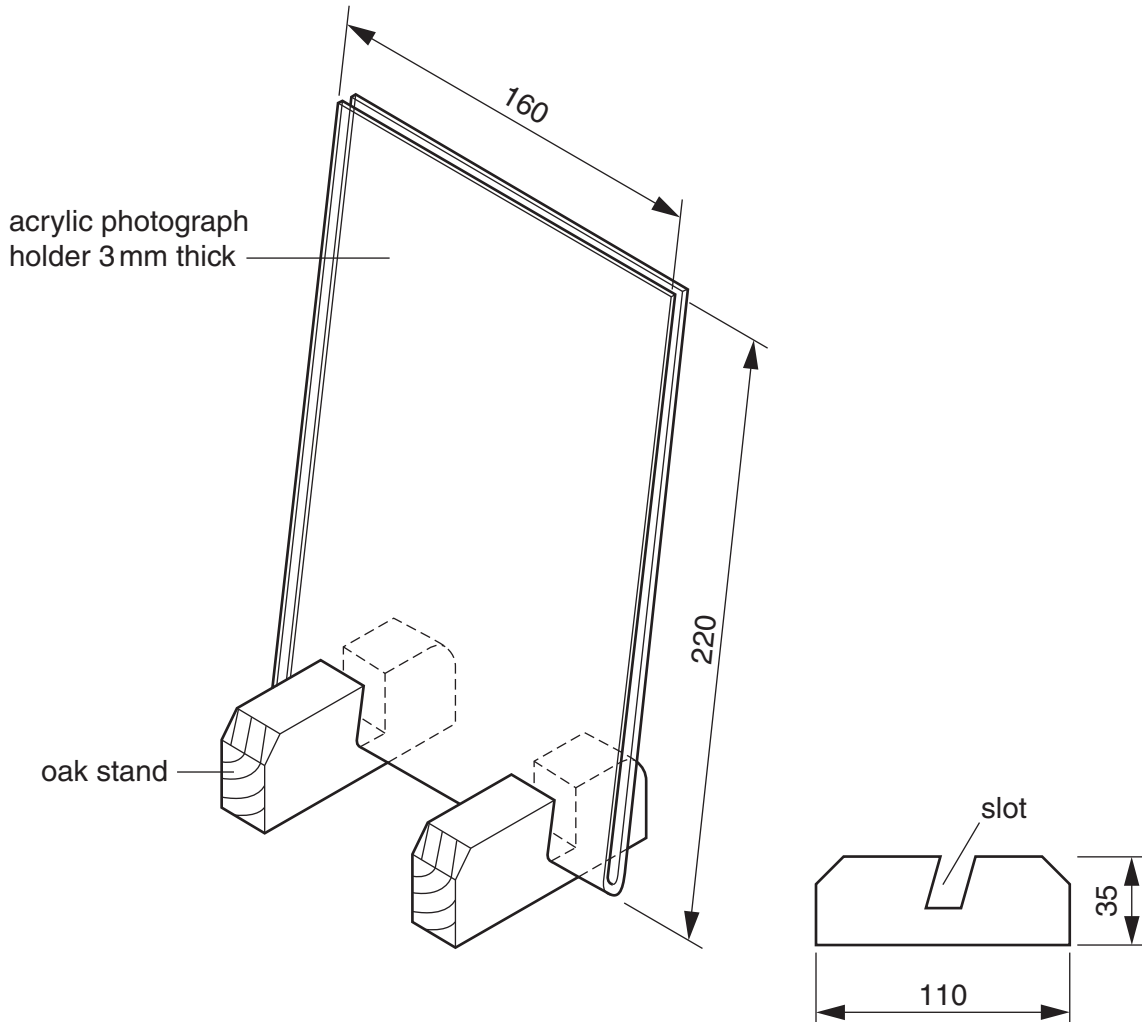


Fig. 1

- (a) A slot is made in the oak stand (Fig. 1).
Complete the table by naming the tools used to make the slot in the oak stand.

Stage	Process	Tools
1	Mark out the slot	
2	Cut out the slot	
3	Make the bottom of the slot flat	

[3]

(b) Use sketches and notes to show how one piece of acrylic could be bent into the shape of the photograph holder.

[3]

(c) Describe how the edges of the acrylic would be finished to a high quality shine.

.....

.....

.....

..... [2]

(d) Use sketches and notes to show how the design of the acrylic photograph holder could be modified to become a freestanding photograph holder.

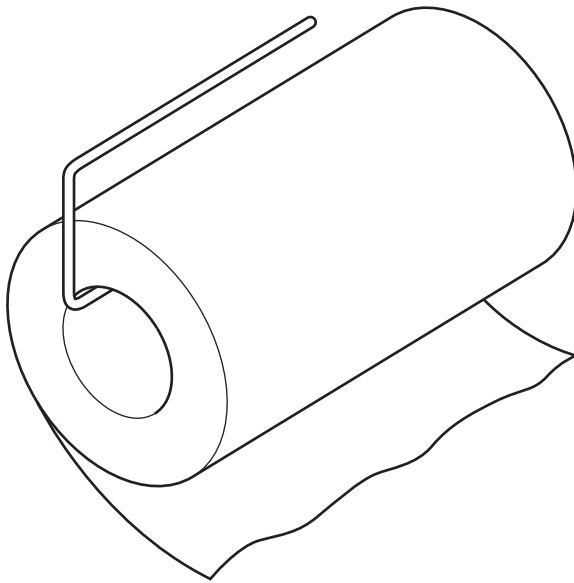
Include details of how the modified design could be made.

[4]

[Total: 12]

Turn over

- 2 Fig. 2 shows an incomplete design for a wall-mounted holder for a kitchen roll. The metal rod is made from aluminium.



aluminium rod $\text{\O}6$
kitchen roll $210 \times \text{\O}120$
hole in roll $\text{\O}50$

Fig. 2

- (a) The aluminium rod does not need an applied finish.

Give **one** reason why the aluminium rod does not need an applied finish.

.....
.....
..... [1]

- (b) Use sketches and notes to show how you would produce **one** of the bends in the aluminium rod.

- (c) Use sketches and notes to complete the design of the kitchen roll holder so that it could be wall-mounted.
Include details of materials and any fittings used.

[4]

- (d) The aluminium rod could be replaced with stainless steel rod.

Give **two** advantages of using stainless steel rather than aluminium for the kitchen roll holder.

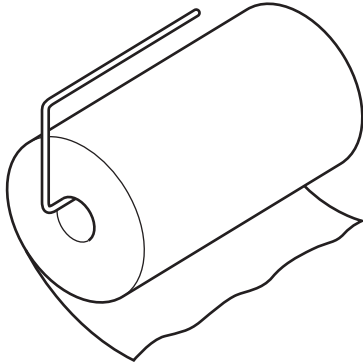
1

.....

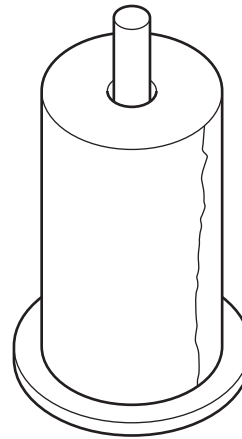
2

..... [2]

(e) Fig. 3 shows two types of kitchen roll holder.



wall-mounted



freestanding

Fig. 3

Give **two** reasons why consumers may prefer to buy a wall-mounted kitchen roll holder than buy a freestanding kitchen roll holder.

1

.....

2

..... [2]

[Total: 12]

3 Fig. 4 shows details of a sit-on toy made mainly from plywood.

The sit-on toy is supplied as a flat-pack for self-assembly.

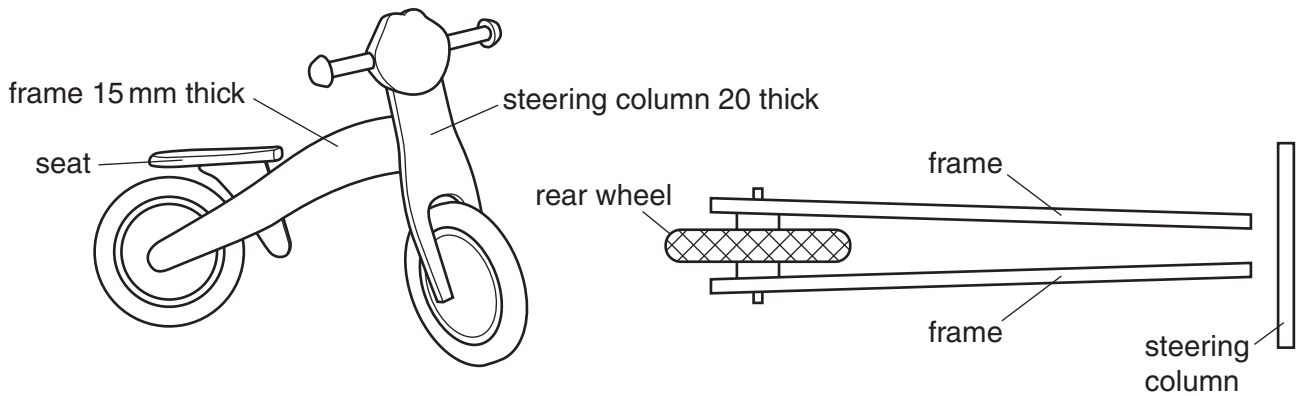


Fig. 4

(a) Give **one** advantage, other than cost, of using plywood rather than solid wood for the sit-on toy.

..... [1]

(b) The sit-on toy is supplied as a flat-pack for self-assembly.

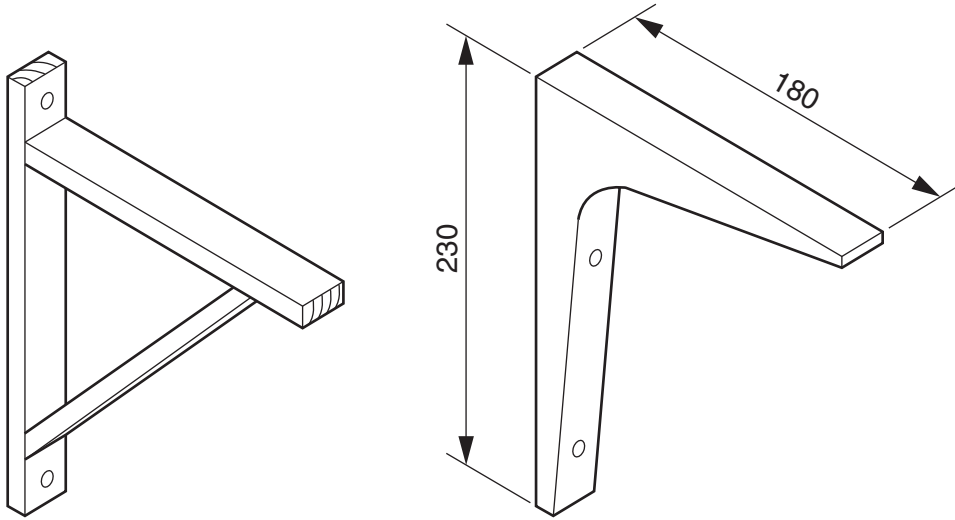
Use sketches and notes to show how the steering column could be joined to the frames to allow the sit-on toy to be steered.

Name the tools that will be needed by the consumer to join the steering column to the frames.

Section B

Answer **all** questions.

- 4 Fig. 5 shows two different brackets that could be used to support a shelf. Both brackets are the same overall size.



bracket **A** fabricated from solid wood

bracket **B** made from moulded plastic

Fig. 5

- (a) (i) State **one** quality control check that would be carried out during the manufacture of bracket **A**.

.....
..... [1]

- (ii) Describe **how** the quality control check would be carried out during the manufacture.

.....
..... [1]

- (iii) State clearly the stage at which the quality control check would be carried out during the manufacture.

.....
..... [1]

- (b) Fig. 6 shows a shelf made from 15 mm thick manufactured board. The shelf will be supported by two of the moulded plastic brackets **B**.

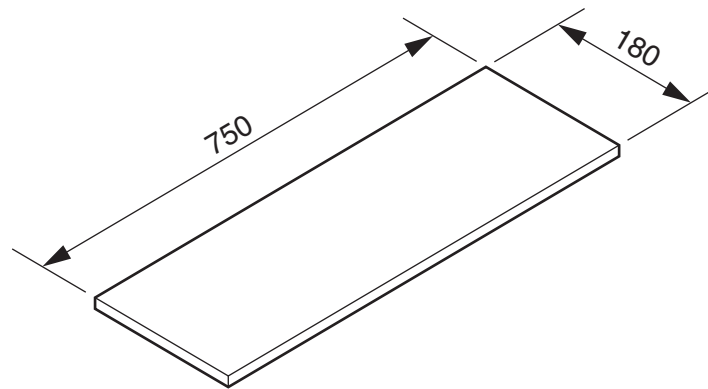


Fig. 6

Use sketches and notes to show how the design of the moulded plastic bracket **B** could be modified so that the shelf is supported securely without the use of pre-manufactured components. The shelf **must not** be modified.

5 Fig. 7 shows an incomplete design for a table that could be used while watching TV.

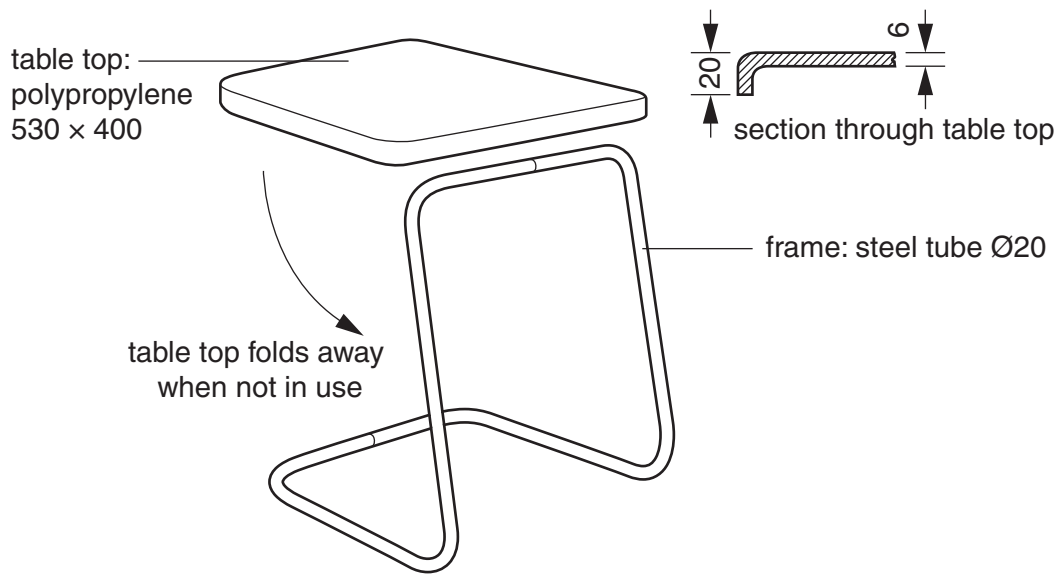


Fig. 7

(a) Give **two** advantages of using polypropylene for the table top rather than a wood-based material.

- 1
-
- 2
- [2]

(b) Use sketches and notes to show how the design of the frame could be changed so that the height of the table top could be adjusted and locked at different heights.

- (c) The table top folds away when not in use.
Use sketches and notes to show modifications to the frame and table top so that the table top can be:
- locked in a horizontal position when in use;
 - folded away when not in use.

[6]

[Total: 12]

14
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