

Centre No.						Paper Reference	Surname	Initial(s)
Candidate No.					3 9 7 3 / 2 H	Signature		

Paper Reference(s)
3973/2H

Edexcel GCSE

Design and Technology: Resistant Materials Technology

(Short Course – 3973)
Paper 2H

Higher Tier

Wednesday 26 May 2010 – Afternoon
Time: 1 hour

Examiner's use only

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Team Leader's use only

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Question Number	Leave Blank
1	
2	
3	
Total	

<u>Materials required for examination</u>	<u>Items included with question papers</u>
Nil	Nil

Instructions to Candidates
 In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.
 Check that you have the correct question paper.
 Answer ALL the questions. Write your answers in the spaces provided in this question paper.

Information for Candidates
 The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).
 There are 3 questions in this question paper. The total mark for this paper is 44.
 There are 12 pages in this question paper. Any blank pages are indicated.
 You may use drawing equipment. If pencil is used for diagrams/sketches, it must be dark (HB or B).
 Coloured pens, pencils and highlighter pens must not be used.
 All measurements are in millimetres (mm) unless otherwise stated.

Advice to Candidates
 You are reminded of the importance of clear English and careful presentation in your answers.
 Include diagrams in your answers where these are helpful.

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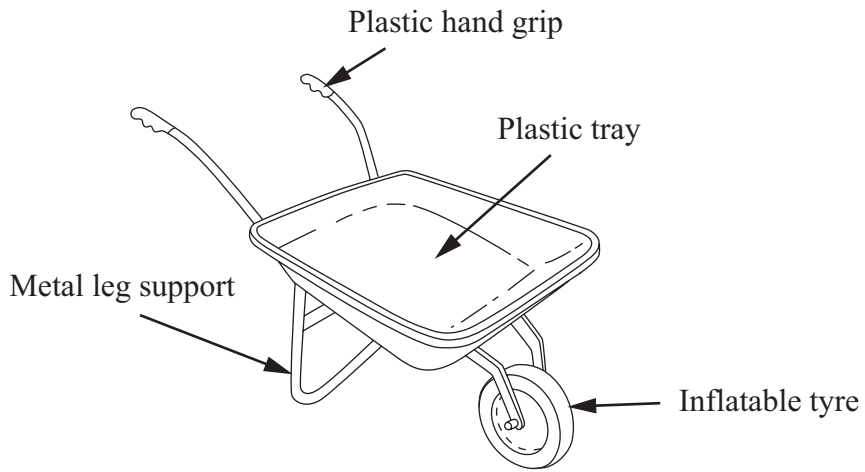


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Answer ALL the questions. Write your answers in the spaces provided below.

1. The drawing below shows a wheelbarrow.

It is sold in do-it-yourself (DIY) stores.



(a) Two specification points for the wheelbarrow are that it must:

- carry heavy loads
- go over rough, wet ground.

Under each of the following headings, give **one** more point that should be included in the specification for the wheelbarrow.

For each point, give **one** reason why it should be included.

(i) **Quality**

Point

Reason

.....

(2)

(ii) **Environment**

Point

Reason

.....

(2)

(iii) **Safety**

Point

Reason

.....

(2)

(b) The leg support is made from mild steel tube.

One reason for making the leg support out of mild steel tube is that it can be easily joined by welding.

Give **two** other reasons why mild steel tube is a suitable material from which to make the leg support.

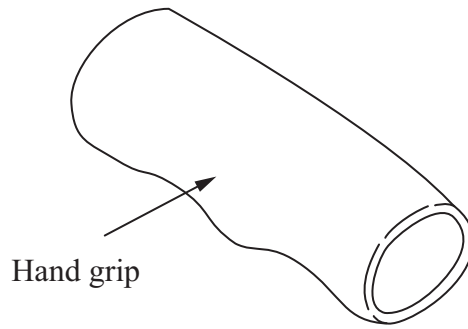
1

2

(2)



(c) The plastic hand grip is manufactured using the injection moulding process.



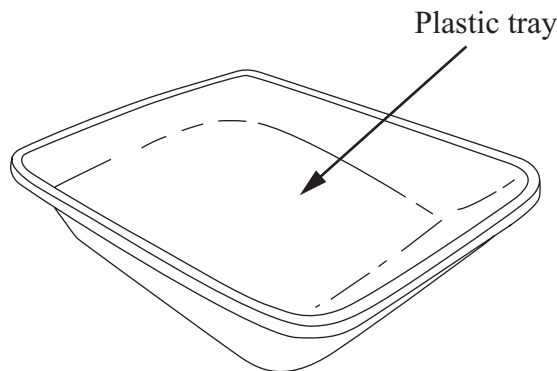
Give **two** reasons why the injection moulding process is suitable to manufacture the plastic hand grip.

1

2

(2)

(d) The plastic tray is made from ABS.



Give **two** properties of ABS that make it suitable for the tray.

For each property give **one** reason why it makes ABS suitable for the tray.

Property 1

Reason

.....

Property 2

Reason

.....

(4)



(e) The manufacturer of the wheelbarrow uses sampling during production.

Explain **one** reason for using sampling during the manufacture of the wheelbarrow.

.....
.....
(2)

(f) The leg support is painted.

Explain **one** reason why the leg support is painted.

.....
.....
(2)

(g) Two purposes of the wheelbarrow are to:

- carry heavy loads
- go over rough, wet ground.

Explain, under the following headings, how the wheelbarrow achieves these purposes.

(i) Carry heavy loads.

.....
.....
.....
.....
(2)

(ii) Go over rough, wet ground.

.....
.....
.....
.....
(2)

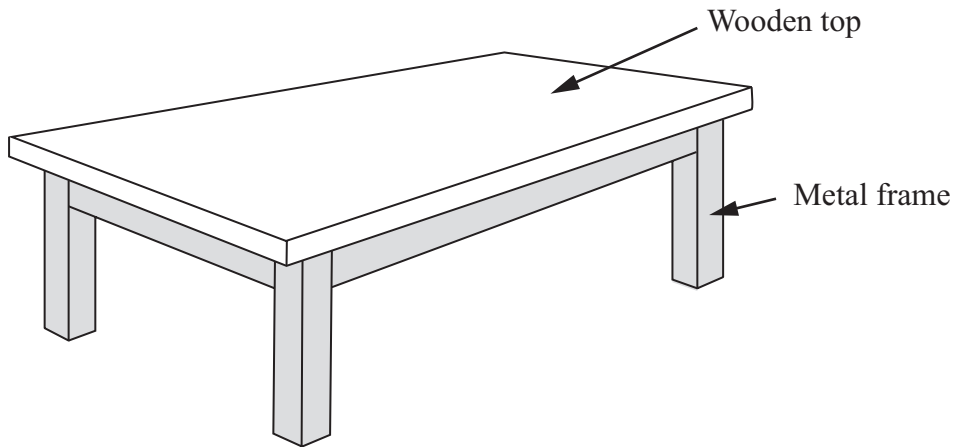
(Total 22 marks)

Q1

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2. The drawing below shows a coffee table.



(a) The metal frame of the coffee table has been welded together.

Give **three** risks associated with welding.

- 1
- 2
- 3

(3)

(b) The wooden table top has been finished with a clear varnish.

Complete the table below to show the remaining **four** main stages involved in applying a finish of clear varnish to a wooden table top.

One mark is awarded for the correct sequence.

Some stages have been done for you.

Stage	Process
1	Rub down surface with glass paper
2	
3	
4	Let it dry
5	
6	

(5)



(c) Give **one** finish, other than varnish or paint, that could be applied to the wooden table top.

.....
(1)

(d) Explain **one** reason for finishing the wooden table top with a clear varnish.

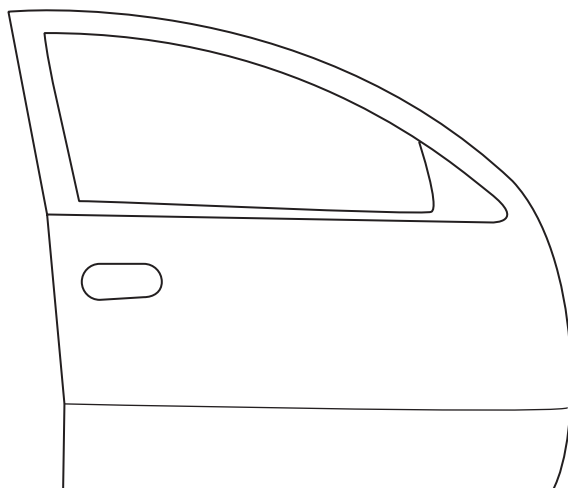
.....
.....
(2)

Q2

(Total 11 marks)



3. The drawing below shows a car door panel.



(a) The car door panel is made from mild steel.

Give **two** properties of mild steel that make it a suitable material for the car door panel.

For each property give **one** reason why it makes mild steel suitable.

Property 1

Reason

.....

Property 2

Reason

.....

(4)

(b) Mild steel is a ferrous metal.

Give **three** working characteristics of ferrous metals.

1

2

3

(3)



(c) Aluminium was considered for the manufacture of the car door panel.

Explain **one** disadvantage of using aluminium for the car door panel rather than mild steel.

.....
.....

(2)

(d) Carbon fibres are used for body panels on racing cars.

Explain **one** reason why carbon fibres are used for body panels on racing cars.

.....
.....

(2)

Q3

(Total 11 marks)

TOTAL FOR PAPER: 44 MARKS

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