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General Certificate of Secondary Education 2016

Engineering

Paper 2
Assessment Unit 3
assessing
Engineering Technology



[GEE32] MONDAY 6 JUNE, AFTERNOON

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

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

Write your answers in the spaces provided in this question paper.

Answer all parts of the one question in this paper.

The paper should be answered in relation to the Pre-Release Material. You will be provided with a new copy of the Pre-Release Material.

You should **not** bring any of the material previously issued, or any notes made, into this examination.

INFORMATION FOR CANDIDATES

The total mark for this paper is 40.

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

Quality of written communication is assessed in question (g).

For Examiner's use only			
Question Number	Marks		
(a)			
(b)			
(c)			
(d)			
(e)			
(f)			
(g)			

Total	
Marks	

Answer **all** parts of the question.

Examiner Only				
Marks	Remark			

There is **one** question in the paper which relates to the pre-release material.

(a)	(i)	The garden trolley has a mild steel mesh deck and side panels Outline two reasons why the manufacturer used this mild steel mesh rather than using sheet mild steel.	
		1	[1]
		2	[1]
	(ii)	A disadvantage of using the mild steel for the mesh and side panels is that the mild steel can corrode. Outline two ways of reducing corrosion.	
		1	[1]
		2	[1]
	(iii)	What manufacturing process could be used to attach the mesh deck and side panels to the frame of the garden trolley?	
			[1]
(b)	(i)	Name a part of the garden trolley that could be manufactured by press forming.	у
			[1]
	(ii)	Explain why press forming is appropriate for this part.	
			[2]
(c)	rea	arings are used to aid the smooth rotation of the wheels. Give tw sons why a manufacturer would buy in wheel bearings as stand apponents, rather than manufacture them.	
	1		
			[2]
	2		
			[2]

10125.04**R** 2

(d)	Because of competition, profitability of the garden trolley has gone down in recent years. Explain one specific way the company can increase profitability by reducing manufacturing costs.				
		[2]			
(e)	The product in the pre-release material has been produced by a company that uses robots in the manufacture of many parts of the garden trolley.				
	Other companies may produce garden trolleys using more tradition manufacturing processes and skills.	al			
	Give three advantages of the process used by the company in the pre-release material compared to the processes used by other companies as outlined above.				
	1				
		[2]			
	2				
	3.	[2]			
		[2]			

Examiner Only

Marks Remark

(f)	In the box below, using annotated sketches and correct terminology, show how the sides of the portable garden trolley can:	Examir Marks	ner Only Remark
	fold down;be detached.		
	 Marks will be awarded for Detail contained in sketches [4] Quality of sketches [3] Detailed notes [3] 		
	[11]		

4

10125.04**R**

(g)	The material used for the frames of the side panels of the garden trolley is manufactured by a process known as extrusion. In the box below produce annotated sketch/es of the extrusion process.	Examin Marks	er Only Remark
	Marks will be awarded for • Suitability of chosen method [4] • Quality of sketches [3] • Detailed notes [3]		
	Quality of written communication is assessed in this question.		
	[10]		

5



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General Certificate of Secondary Education 2016

Engineering

Pre-Release Material EXAMINATION COPY

Paper 2
Assessment Unit 3
assessing
Engineering Technology



[GEE32] MONDAY 6 JUNE, AFTERNOON

You must use **this** clean copy of the Pre-Release Material in the examination and **not** your own annotated copy.

Answer **all** parts of the question.

There is **one** question in the paper which relates to the pre-release material.

You should draw on the knowledge gained from the pre-release task and also Unit 3: Engineering Technology.

The image below shows a portable garden trolley.



© Rhyas heavy duty garden trolley (53380) Permission granted by Rhyas. http://rhyas.com/index.php/home-garden/rhyas-heavy-duty-garden-trolley.html

Description

The heavy duty garden trolley is a great addition to any garden, smallholding or stock yard.

It has a unique handle which enables effortless steering.

The trolley is ideal for transporting pots, compost, stones, straw, riding equipment and many other items.

The drop-down sides are perfect for getting heavy items in and out – such as logs, bricks or small straw bales.

It is fitted with four wheels with bearings plus pneumatic tyres which ensure good travel over tricky ground.

Features include:

- Manufactured from mild steel
- The sides are hinged to drop for flexibility of use, or can be removed altogether to leave a flatbed trolley
- The front wheels can swivel with the front handle
- Pneumatic tyres
- Dimensions of trolley: 102 cm long × 56 cm wide × 23 cm high
- Overall height including wheels: 57 cm high
- Trolley handle length: 83 cms
- Weight: 24 kg
- Load Capacity: 300 kg

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