

General Certificate of Secondary Education 2014

Engineering

Paper 1 Assessment Unit 3

assessing

Engineering Technology

[GEE31]

FRIDAY 23 MAY, 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 ten** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 80.

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

For Exa	_
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

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71

Candidate Number

Total	
Marks	

Answer all questions.

1 (a) All the products below belong to a manufacturing sector.

Circle **two** products shown below that belong to the mechanical fabrication sector.

You **must** only circle **two** products. If you make a mistake you must clearly show which two products you have chosen.



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[2]



(b) All the products below belong to a manufacturing sector.

Circle **two** products shown below that belong to the engineering fabrication sector.

You **must** only circle **two** products. If you make a mistake you must clearly show which two products you have chosen.



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[2]

Answer all parts of this question in the spaces provided.

Question	Answer	
(a) Name the tool shown. Give a use for it in an engineering workshop.	Name of tool	
	Use	
Source: Supplied by author		[2]
(b) Identify the engineering component shown. Give a	Name	
use for it in an engineering workshop.	Use	
Source: Supplied by author		[2]
(c) Name the drill bit shown. Give a reason for its use.	Name	
	Reason	
Source: Supplied by author		[2]
	1	[4]

4 www.StudentBounty.com

Examiner Only

Marks Remark

(d) Identify the component	Name
an anginoaring workshop	Use
Source: Supplied by author	
(e) Identify the tool shown. Give a use for it in an	[2] Name
engineering workshop.	Use
Source: Supplied by author	[2]

Evenin	or Only
Examin Marks	Remark
I	1

(a)	Using any two of the three pairs of material categories listed below, outline the differences between the two types of materials in the pair. You should include examples to support your answer.	Examiner Marks R
	 Hardwoods and softwoods Ferrous and non-ferrous metals Thermoplastics and thermosetting plastics 	
	Thermoplastics and thermosetting plastics	
		_
		_
		_
		_
		_
		_
		_
		[4]
(b)	Describe ductility, malleability and toughness as properties of metals	
	Ductility	
		_
		[2]
	Malleability	
		_
		[2]
		[2]
	Toughness	

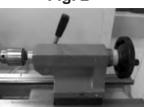
(a) Identify any three of the four lathe parts shown in the figures below. Show clearly which three figures you have chosen.

Fig. 1



Source: Supplied by author

Fig. 2



Source: Supplied by author



Source: Supplied by author



Fig. 4

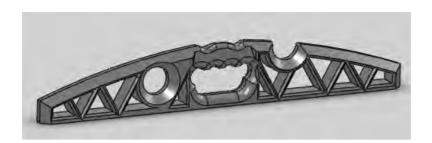
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1.	[1]

2.	[1	1

(b) Explain any **two** of the following in relation to machining. Show clearly which two you have chosen.

Chuck key	Swarf	Feed	Clearance angle
1			
			[2]
2			
			[2]



(a) What does the abbreviation CAM stand for?

[1]

(b) Outline two advantages of using CAD for the designer.

1. _____

_____[2]

2. _____

______[2]







Source: Supplied by author

CNC machine

Spirit level manufactured using a CNC machine

Outline **one** advantage and **one** disadvantage of using CNC machines for the manufacturer.

Advantage	
	[2]
Disadvantage	
	[3]

8836 9 [Turn over

6 The picture below shows a hinge made using a 3D printer.



Source: Supplied by author

The majority of engineering companies will produce prototypes to ensure that the quality of final products meets certain criteria.

(a)	How do Quality Control and Quality Assurance differ?	
		[2]
(b)	Outline one reason why it is important for an engineering company ensure that quality assurance is carried out on their products.	to
		[2]
(c)	Identify one engineering product and describe how quality assurant has impacted on this product for the customer.	се
	Product	
	Impact of Quality Assurance	

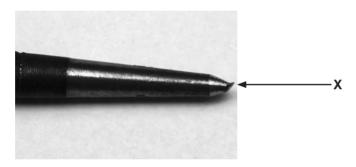
Examiner Only

Marks Remark

(a)	With reference to the engineering sector, describe how modern materials have helped the design and development of engineered products.	
	Design	
		[2]
	Development	
		[2]
(b)	Outline two benefits for engineering companies of developing model materials.	rn
	1	
		[2]
		[2]

(b) The centre punch shown below is used in the manufacture of engineered products.





Source: Supplied by author

_ [2]

(i) Outline **one** reason for the damage to the point of the centre punch shown at **X**.

(ii)	Explain one method to prevent damage to the point of a centrepunch.	e 	Examin Marks	er Only Remark
		[2]		
(iii)	State one safety precaution which should be observed when using water for cooling during heat treatment.			
		_ [2]		

	e engineering sector incorporates a variety of manufacturing methods e such method is the use of automation.	S.
(a)	Outline two benefits of using automation throughout the manufacturing process.	
	1	[2]
	2	
		[2]
(b)	Outline two disadvantages of automation within the manufacturing industry.	
	1	
	2	
		[2]

Exam Marks	ner Only Remark
Marks	Remark
1	1

0		alth and safety issues are considered throughout the engineering se variety of different ways.	Ctor Exam
		Explain, giving two examples, how health and safety issues have impacted on the manufacture of engineered products.	
		1	
		2	
	(b)	Explain, giving two examples, how health and safety issues have impacted within an engineering firm, with specific reference to the workforce.	
		1	
		2	

THIS IS THE END OF THE QUESTION PAPER

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