



General Certificate of Secondary Education
2017

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Manufacturing

Paper 1
Assessment Unit 3
assessing
Manufacturing Technology



GMA31

[GMA31]

TUESDAY 20 JUNE, MORNING

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 part question.
Quality of written communication will be assessed in question **10**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Total Marks	
--------------------	--

Answer **all** questions

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

Circle the **two** products shown below that belong to the food and drink sector.

You **must** only circle **two** products.

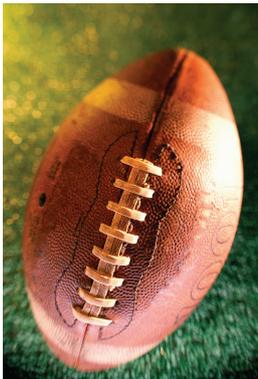
If you make a mistake you must clearly show which two products you have chosen.



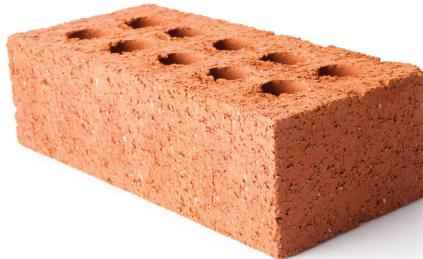
© icafreitas / iStock / Thinkstock



© c-photo / iStock / Thinkstock



© Ingram Publishing / Thinkstock



© Wavebreakmedia Ltd / Wavebreak Media / Thinkstock



© Hyrma / iStock / Thinkstock



© Shadowwolf0101 / iStock / Thinkstock

Examiner Only	
Marks	Remark

[2]

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

Circle the **two** products shown below that belong to the biological and chemical sector.

You **must** only circle **two** products.

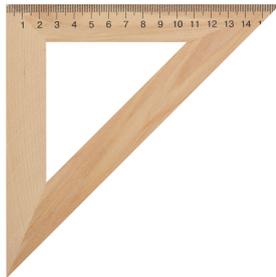
If you make a mistake you must clearly show which two products you have chosen.



© scanrail / iStock / Thinkstock



© neskez / iStock / Thinkstock



© photo_world / iStock / Thinkstock



© suslik83 / iStock / Thinkstock



© STILLFX / iStock / Thinkstock



© nito100 / iStock / Thinkstock

[2]

Examiner Only	
Marks	Remark

2 Answer all parts of the question in the spaces provided.

Examiner Only	
Marks	Remark

Question	Answer
----------	--------

(a) Name the component shown below and state a practical use for it.



© patpitchaya / iStock / Thinkstock

Name _____

Practical use _____

[2]

(b) Name the tool shown below and state a practical use for it.



© Zoonar/P.Malyshev / Zoonar / Thinkstock

Name _____

Practical use _____

[2]

(c) Name the tool shown below and state a practical use for it.



© Steve Gorton / Thinkstock

Name _____

Practical use _____

[2]

(d) Name the components shown below and state a practical use for them.



© Yulia-Images / iStock / Thinkstock

Name _____

Practical use _____

[2]

(e) Name the tool shown below and state a material that it could be used on.



© prill / iStock / Thinkstock

Name _____

Material _____

[2]

3 The food industry makes substantial use of plastic for packaging and storage. The figures below show two examples.



© pink_fairy / iStock / Thinkstock

Fig. 1(a)



© bigacis/ iStock / Thinkstock

Fig. 1(b)

(a) (i) Name **two** thermoplastics.

1. _____ [1]

2. _____ [1]

(ii) Name **two** thermosetting plastics.

1. _____ [1]

2. _____ [1]

(b) List **three** processes that could be used to finish the edge of a piece of plastic.

1. _____ [1]

2. _____ [1]

3. _____ [1]

(c) (i) State how the storage container used for oranges in **Fig. 1(a)** could be manufactured.

_____ [1]

(ii) State how the case in **Fig. 1(b)** for the strawberries could be manufactured.

_____ [1]

Examiner Only	
Marks	Remark

4 Smart materials have been developed in recent years to improve the performance of many products.

(a) (i) Explain the term smart material.

_____ [2]

(ii) Name **one** smart material.

_____ [1]

(iii) Describe a property of the named smart material identified in part (a)(ii).

_____ [2]

(b) (i) Explain the term composite material.

_____ [2]

(ii) Name **two** composite materials.

1. _____ [1]

2. _____ [1]

Examiner Only

Marks Remark

- 5 (a) Fig. 2 below shows a diagram of two pieces of 10 mm thick mild steel plate to be joined in the position shown.

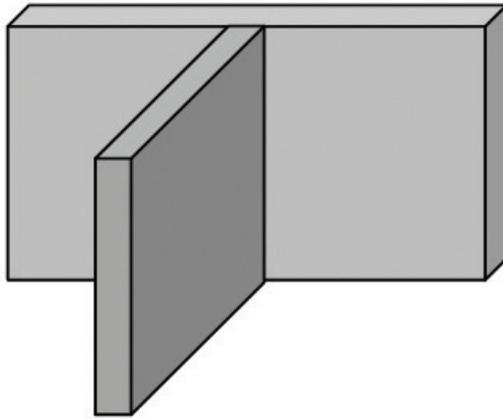


Fig. 2

- (i) Name **one** permanent method of joining the two pieces of mild steel plate shown in Fig. 2.

_____ [1]

- (ii) State **one** safety precaution you should consider when joining the two pieces of mild steel plate shown in Fig. 2.

_____ [1]

- (b) Fig. 3 below shows a diagram of two pieces of 10 mm mild steel plate to be joined in the position shown.

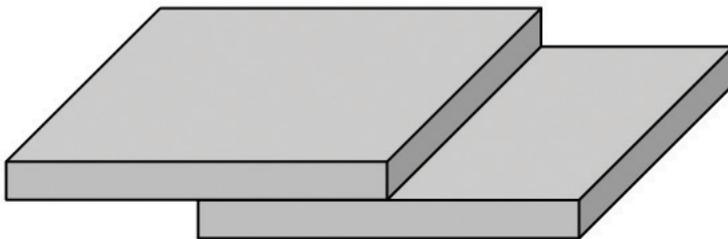


Fig. 3

- (i) Name **one** temporary method of joining the two pieces of mild steel plate shown in Fig. 3.

_____ [1]

- (ii) Name another appropriate permanent method of joining the two pieces of mild steel plate shown in Fig. 3.

Your answer must be different from 5(a)(i).

_____ [1]

Examiner Only	
Marks	Remark

- 7 Modern technologies are used in all manufacturing sectors. The picture below shows an automatic cardboard packaging line conveyor system.



© Jupiterimages/ Stockbyte / Thinkstock

(a) Explain the impact that modern technologies have had on:

- (i) The use of material in the packaging production process.

[2]

- (ii) Safety during the packaging production process.

[2]

Examiner Only	
Marks	Remark

- 8 (a) (i) Explain **one** impact computer aided manufacturing (CAM) has on manufacturing processes in the **textile and clothing** sector.

 [2]

- (ii) Identify **one** way that computer aided design (CAD) has influenced the design of products in the **textiles and clothing** sector.

 [2]

- (b) Food availability has been impacted by modern methods of producing, packaging and storing food. These methods can have both positive and negative impacts on society.

Outline **one** positive and **one** negative impact that modern technology has had on the food available to consumers.

Positive

 [2]

Negative

 [2]

Examiner Only	
Marks	Remark

(c) Fig. 4 shows a product from the food and drink sector.



Fig. 4

© Korayarts / iStock / Thinkstock

Examiner Only	
Marks	Remark

(i) Identify **two** design features of the product shown in Fig. 4.

Design feature 1

[1]

Design feature 2

[1]

(ii) Suggest **two** improvements to the design of the products shown in Fig. 4.

Improvement 1

[1]

Improvement 2

[1]

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA
will be happy to rectify any omissions of acknowledgement in future if notified.