



Rewarding Learning

General Certificate of Secondary Education
2015

Centre Number

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Candidate Number

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Manufacturing

Paper 2

Assessment Unit 3

assessing

Manufacturing Technology



GMA32

[GMA32]

FRIDAY 19 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 **(h)** and **(i)**.

For Examiner's use only

Question Number	Marks
(a)	
(b)	
(c)	
(d)	
(e)	
(f)	
(g)	
(h)	
(i)	

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

Answer **all** parts of the question.

Examiner Only	
Marks	Remark

1 (a) CIM is used in the production and distribution of the balance bike.

(i) What do the letters CIM stand for?

_____ [1]

(ii) Discuss **one** advantage of using CIM for the production or distribution of the balance bike.

_____ [2]

(b) Plywood is extensively used in the production of the balance bike.

(i) Identify **one advantage** and **one disadvantage** of using plywood instead of MDF, of the same thickness, to manufacture the wooden parts of the balance bike.

Advantage: _____
_____ [1]

Disadvantage: _____
_____ [1]

(ii) In what form is plywood supplied to the company who manufacture the balance bikes?

Form: _____ [1]

(c) Quality assurance is an important factor for manufacturers and consumers. Balance bikes are therefore sold with a British Standards label attached.

Describe **one** advantage selling balance bikes with British Standards labels attached has for the manufacturer.

_____ [2]

(d) (i) List **two** reasons why the company use CAD/CAM in the design and manufacture of the balance bike.

1: _____ [1]

2: _____ [1]

(ii) Identify **one** disadvantage of using CAD/CAM in the design and manufacture of the balance bike.

_____ [1]

(e) There are many differences in how the balance bike is manufactured today compared with how it would have been manufactured 30 years ago.

(i) Compare the differences in **traditional** and **modern** production methods of the main body of the balance bike.

Traditional: _____ [1]

Modern: _____ [1]

(ii) List **one advantage** and **one disadvantage** of the use of ICT in manufacturing companies.

Advantage: _____ [1]

Disadvantage: _____ [1]

Examiner Only	
Marks	Remark

(f) A variety of materials are used in the manufacture of the balance bike.

(i) Identify **one** reason why rubber is an appropriate material for the grips.

_____ [1]

(ii) Suggest **one** reason why aluminium is a suitable material for the wheel of the bike.

_____ [1]

(iii) Name another specific material that could be used for the main body of the balance bike.

_____ [1]

(g) The tyres are purchased by the company which manufactures the balance bike.

(i) Name **one** other component or part that may have been 'bought in' to complete the production of the balance bike.

_____ [1]

(ii) Identify a reason why the company 'buy in' standard components or parts instead of manufacturing them.

_____ [1]

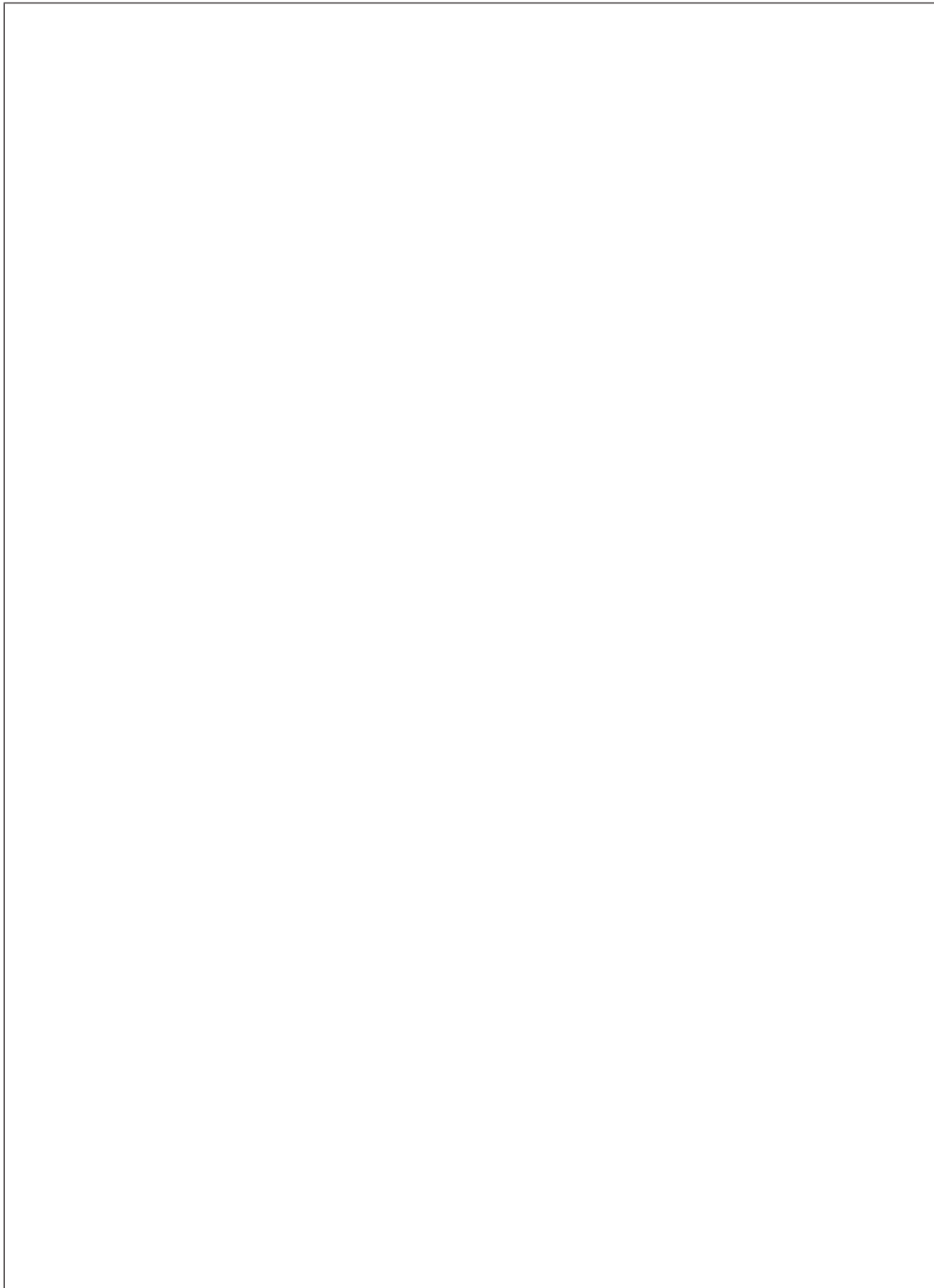
Examiner Only	
Marks	Remark

(h) The aluminium wheels are manufactured by the process of press forming.

In the box below, using annotated sketches and correct terminology, describe how the process of press forming is carried out.

Marks will be awarded for

- Detail contained in sketches [4]
- Quality of sketches [3]
- Detailed notes [3]



[10]

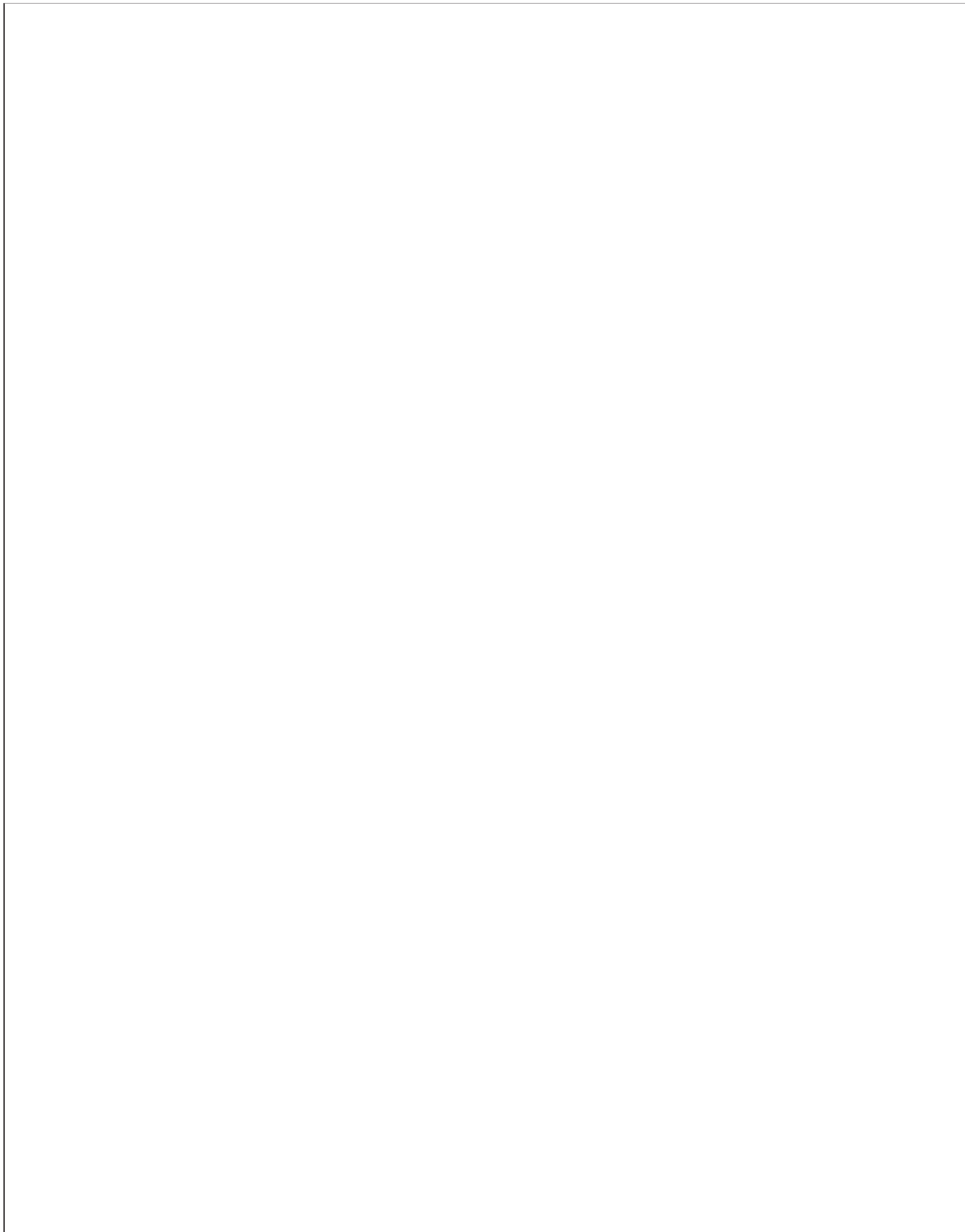
Examiner Only	
Marks	Remark

- (i) The balance bike has an ergonomically designed seat for comfort. The seat is attached to a seat post and the height can be adjusted. The seat has a plastic covering with foam inside for extra cushioning and comfort.

In the box below, using annotated sketches and correct terminology, describe in detail how the balance bike seat would be constructed and how it would be attached to the seat post.

Marks will be awarded for:

- Detail contained in sketches [4]
- Quality of sketches [3]
- Detailed notes [3]



[10]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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**General Certificate of Secondary Education
2015**

Manufacturing
Pre-Release Material
EXAMINATION COPY
Paper 2
Assessment Unit 3
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Manufacturing Technology
[GMA32]



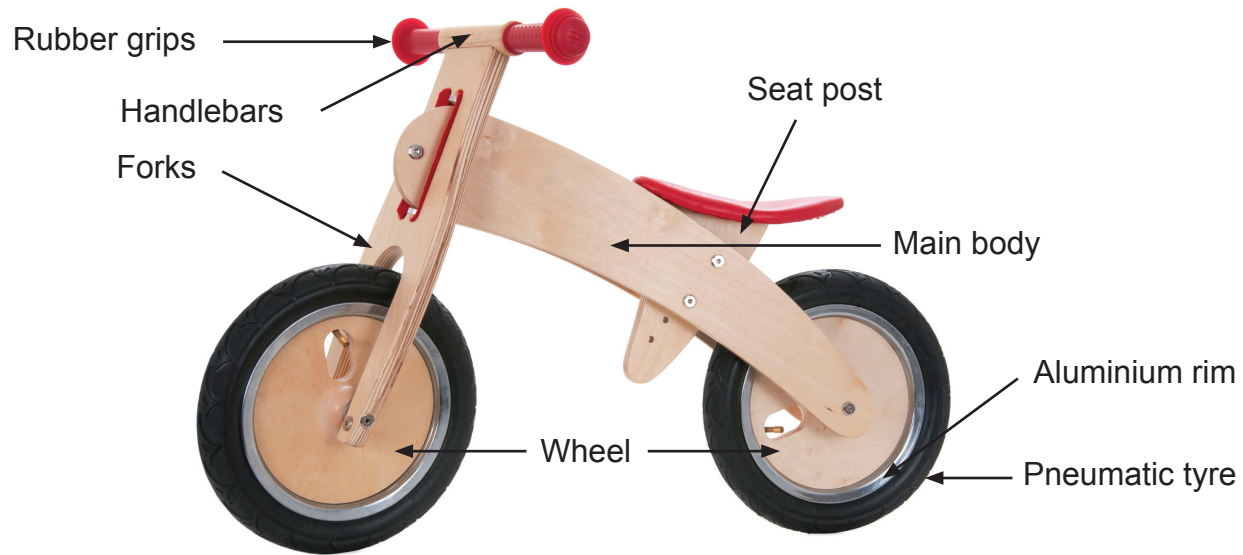
GMA32

JANUARY 2015 AND SUMMER 2015

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

Manufacturing Technology Pre-Release Material

The image below shows a “Balance bike for toddlers”.



© Thinkstock

Description

This product is designed to improve a child’s balance and help them to quickly learn the skills required to ride a bike. By using a balance bike they can gain confidence in holding the handlebars while pushing the bike forward with their feet. The seat can be raised and lowered and there is a simple mechanism that allows for steering.

Features include:

- Made from solid marine grade birch plywood
- Aluminium rims with pneumatic tyres
- Easy access tyre valves
- Adjustable seat height
- Embroidered seat covers that can be gender specific or neutral
- Fittings and steering assembly enable a smooth ride
- Moulded rubber handlebar grips for comfort.