

Rewarding Learning

Manufacturing

## Paper 1 <br> Assessment Unit 3

assessing
Manufacturing Technology
[GMA31]
MONDAY 12 JANUARY, 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 part question.

## General Certificate of Secondary Education 2015

## Centre Number

Candidate Number
$\qquad$

| For Examiner's <br> use only |  |
| :---: | :---: |
| Question <br> Number | Marks |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |
| Total <br> Marks |  |

1 (a) All the products below belong to a manufacturing sector.
Circle two products shown below that belong to the printing and publishing sector.

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

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

Circle 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.

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2 Answer all parts of this question.

| Question | Answer |
| :---: | :---: |

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


Name $\qquad$
Use
$\qquad$
(b) Name the components shown below and state a use for them.


Name $\qquad$
Use
$\qquad$
$\qquad$
Name $\left.\quad \begin{array}{l}\text { Use } \\ \square\end{array}\right]$
(c) Name the tool shown below and state a use for it.


Name $\qquad$
Use
$\qquad$
$\qquad$
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(d) Name the tool shown below and state a use for it.

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Name $\qquad$
Use
$\qquad$
$\qquad$
(e) Name the tool shown below and state a use for it.


Name $\qquad$
Use
$\qquad$
$\qquad$

3 (a) There are many items from manufacturing industries that are produced using various metals.
(i) Name the two main groups of metal.

1. $\qquad$
2. 

(ii) Explain the difference between these two groups of metals.
$\qquad$
$\qquad$
$\qquad$
(iii) Describe what is meant by the term alloy.
$\qquad$
$\qquad$
$\qquad$
(iv) Describe what is meant by the term composite.
$\qquad$
$\qquad$
$\qquad$
(b) The following image shows where pieces of a metal structure have been joined permanently.

(i) Name the method of joining these sections of metal.
$\qquad$
(ii) Name one alternative permanent method of joining metal.
$\qquad$
(iii) Name one temporary method of joining metal.

4 CAD and CAM have become increasingly important in manufacturing industries.
(i) Describe the difference between CAD and CAM.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(ii) State two advantages of using CAD in the manufacturing industry.

1. $\qquad$
$\qquad$
2. $\qquad$
$\qquad$
(iii) Give one advantage and one disadvantage of CAM.

Advantage
$\qquad$
$\qquad$
Disadvantage
$\qquad$
$\qquad$

5 Materials can be supplied in various forms and with diverse properties.
(a) List examples of specific materials that are supplied in the following forms:
(i) Granules
$\qquad$
(ii) Sheet
$\qquad$
(iii) Rod
$\qquad$
(iv) Box section
$\qquad$
(v) Tube
$\qquad$
(b) The image below is a dog bowl made from rigid polystyrene.

(i) Name one industrial manufacturing process that could be used to produce the dog bowl.

Process
$\qquad$
(ii) Identify one advantage and one disadvantage associated with this type of industrial process.

Advantage
$\qquad$
$\qquad$

Disadvantage
$\qquad$
$\qquad$
(c) Name one other example of a polymer and identify a typical application for this material.

Polymer
$\qquad$
Application
$\qquad$
$\qquad$

6 (a) The tool shown below can be used to hold two pieces of material together to help with nailing or gluing.

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(i) Name this tool
$\qquad$
(ii) Identify one other specific task that this tool could be used for other than the job mentioned above.

Task
(iii) When using this tool to hold two pieces of wood together, it is often necessary to use some scrap wood. Explain why this scrap wood might be required.
$\qquad$
$\qquad$
(b) The image below shows a slot and rebate cut in a piece of wood.

(i) Identify one hand tool that could be used to remove the slot after it has been marked out.

Hand tool
(ii) Identify one tool that could be used for marking out a rebate.

Tool

7 (a) The following tasks related to the design process are not in the correct order.

Using the spaces provided, insert the following four tasks in the correct order.

| Production | Assembly |
| :---: | :---: |
| Marketing | Production Planning |

Complete the correct sequence below.

(b) School workbenches, similar to those found in your workshops, are manufactured using a number of various stages.

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Describe the following stages in the manufacture of a workbench.
(i) Production of steel frame.
$\qquad$
$\qquad$
$\qquad$
(ii) Material supply and control.
$\qquad$
$\qquad$
$\qquad$
(iii) Assembly and completion of the workbench.
$\qquad$
$\qquad$
$\qquad$

8 (a) ICT is applied extensively in manufacturing systems and the production processes adopted by companies. A company that incorporates CIM can significantly increase efficiency and productivity.
(i) What do the initials CIM stand for?
$\qquad$
(ii) List two reasons why CIM can increase the productivity and efficiency of a manufacturing company.

1. $\qquad$
$\qquad$
2. $\qquad$
$\qquad$
(b) Another important ICT resource that is available in industry is the internet. Identify three ways in which the internet can assist a manufacturing business.
3. 
4. 
5. 

(c) In the textiles and clothing industry, CAM is used extensively. Identify two examples of how CAM is used in this industry.
1.
2.

9 Quality control is crucial in the manufacture of products. It is inspected at various stages of production. Stages of inspection include:

- Raw materials and parts brought into the factory
- Preparation of materials, processing and assembly
- Finished product and packaging.
(i) Name a product and explain how two quality control checks could be carried out.

Product

Quality control check 1
$\qquad$
$\qquad$
Quality control check 2
$\qquad$
$\qquad$
(ii) Identify why it is important for a manufacturer to ensure that quality control takes place when manufacturing a product.
$\qquad$
$\qquad$

10 Manufacturers have to consider the environmental impact of their manufacturing processes. With reference to specific materials and possible advances in manufacturing technology, discuss the following:
(i) How it is possible for a manufacturer to ensure that only the correct amount of materials are purchased.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(ii) The problems associated with the increased use of plastics for manufacture of products.
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## THIS IS THE END OF THE QUESTION PAPER

