



Rewarding Learning

General Certificate of Secondary Education
2017

Manufacturing

Paper 2

Assessment Unit 3

assessing

Manufacturing Technology

[GMA32]

FRIDAY 23 JUNE, AFTERNOON

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses. The mark schemes should be read in conjunction with these general marking instructions.

Assessment Objectives

Below are the assessment objectives for Manufacturing.

Candidates must:

- recall, select and communicate their knowledge and understanding of manufacturing in a range of contexts (AO1);
- apply skills, knowledge and understanding, including quality standards, in a variety of contexts, and plan and carry out investigations and tasks involving a range of tools, equipment, materials and components (AO2); and
- analyse and evaluate evidence, make reasoned judgements and present conclusions (AO3).

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If an answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range for any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response

Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the “best fit” bearing in mind that weakness in one area may be compensated for by strength in another. In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.
- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.
- **High performance:** response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Marking calculations

In marking answers involving calculations, examiners should apply the “own figure rule” so that candidates are not penalised more than once for a computational error.

Quality of written communication

Quality of written communication is taken into account in assessing candidates’ responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is limited.

Level 2: Quality of written communication is satisfactory.

Level 3: Quality of written communication is excellent.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below:

Level 1 (Limited): The level of accuracy of the candidate’s spelling, grammar and punctuation is limited. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary.

Level 2 (Satisfactory): The level of accuracy of the candidate’s spelling, grammar and punctuation is satisfactory. The candidate makes a satisfactory selection and use of an appropriate form and style of writing supported with appropriate use of diagrams as required. Relevant material is organised with some clarity and coherence. There is some use of specialist vocabulary.

Level 3 (Excellent): The level of accuracy of the candidate’s spelling, grammar and punctuation is excellent. The candidate successfully selects and uses the most appropriate form and style of writing, supported with precise and accurate use of diagrams where appropriate. Organisation of relevant material is excellent. There is excellent use of appropriate specialist vocabulary.

- | | | AVAILABLE
MARKS |
|--|-----|--------------------|
| <p>1 (a) (i) Any two from:</p> <ul style="list-style-type: none"> • To protect the surface of the table; • To provide additional hardness; • To create a shiny surface finish; • Improve aesthetics; • Prevents staining; • Easily cleaned. <p>All alternative answers will be considered.
(2 × [1])</p> | [2] | |
| <p>(ii) Any two from:</p> <ul style="list-style-type: none"> • Varnish; • Stain; • Paint; • Polish; • French polish; • Oil; • Wax. <p>All alternative answers will be considered.
(2 × [1])</p> | [2] | |
| <p>(b) (i) Any one from:</p> <ul style="list-style-type: none"> • Mild steel; • Steel; • Aluminium/aluminium alloy <p>NB. Wood/plastic/metal – [0]
All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(ii) Any one from:</p> <ul style="list-style-type: none"> • Improved strength; • Stronger material; • Provide a hard surface; • Less prone to warping or splitting. <p>All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(iii) Any one from:</p> <ul style="list-style-type: none"> • Paint; • Polish; • Plastic coat; <p>All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(c) (i) Any one from:</p> <ul style="list-style-type: none"> • CNC drill/router/mill [1], to drill holes for the legs/table top; runners/guides for extra leaves; [1] • CNC mill [1] used to machine slots in guides to support leaves. [1] <p>All alternative answers will be considered.
(2 × [1])</p> | [2] | |
| <p>(ii) Any one from:</p> <ul style="list-style-type: none"> • Increased speed for repetitive jobs; • Increased accuracy over traditional (hand skills human operated machinery) methods; • Quick and easy to change jobs by changing the job file. <p>All alternative answers will be considered.
(2 × [1])</p> | [2] | |

- | | | AVAILABLE MARKS |
|--|-----|-----------------|
| <p>(d) (i) Any two from:</p> <ul style="list-style-type: none"> • Bought-in parts can be much cheaper; • Easily replaced if there are faults or repairs; • Readily available from a range of suppliers; • Can simplify design work by using instead of a complex joint; • The company is only engaged in the assembly of the table. <p>All alternative answers will be considered.
(2 × [1])</p> | [2] | |
| <p>(ii) Attaching the table top to the frame/assist with the leaves sliding
(1 × [1])</p> | [1] | |
| <p>(iii) Steel; mild steel.
All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(iv) Any one from:</p> <ul style="list-style-type: none"> • Used to attach the legs to the frame; • To attach the sides of the frame to the end of the frame; • Provide strength to the overall structure of the frame. <p>All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(e) (i) Any one from:</p> <ul style="list-style-type: none"> • Apply in a ventilated area; • Wear breathing apparatus or mask suitable for spraying; • Eye protection. <p>All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(ii) A veneer is a thin layer of decorative material [1] that provides an aesthetic improvement of the material below. [1]
All alternative answers will be considered.
(2 × [1])</p> | [2] | |
| <p>(iii) Any one from:</p> <ul style="list-style-type: none"> • To improve the aesthetics of an inexpensive material; • To improve the function of a product; • Increase the stability of the material (less prone to warping or splitting); • It is possible to use the veneer of an expensive material at a fraction of the cost of making the product out of solid material. <p>All alternative answers will be considered.
(1 × [1])</p> | [1] | |
| <p>(f) Any four from:</p> <ul style="list-style-type: none"> • The furniture is manufactured in one country and flat pack makes it easier to transport to distribution centres/retail stores in various countries; • Flat packs require less volume of storage, therefore more products can be transported at any given time; • Transport costs are reduced – smaller volume; • Consumers can buy the products as flat pack therefore they can collect products themselves and therefore avoid delivery charges; • More products can be stored in warehouses, etc., meaning that there is less potential for customers having to wait for their product; • The company can make more profit because time is saved on assembly; | | |

- Customers save money because the suppliers are able to sell at a lower price because there are no assembly costs.

All alternative answers will be considered.

Response type	Description	Mark band
	When a response is not worthy of credit, a [0] should be awarded.	[0]
Limited	Students will correctly identify one discussion point with some detail or two discussion points with limited detail. An attempt has been made to incorporate some terminology into the answer.	[1]–[3]
Satisfactory	Students will correctly identify three discussion points with some detail or four discussion points with limited detail. Some use of technical terminology will be presented and satisfactory use of punctuation and grammar.	[4]–[6]
Good	Students will correctly identify four discussion points with a good level of detail. Correct terminology will be used with good use of punctuation, grammar and accurate spelling.	[7]–[10]

(4 × [2])

Quality of written communication [2]

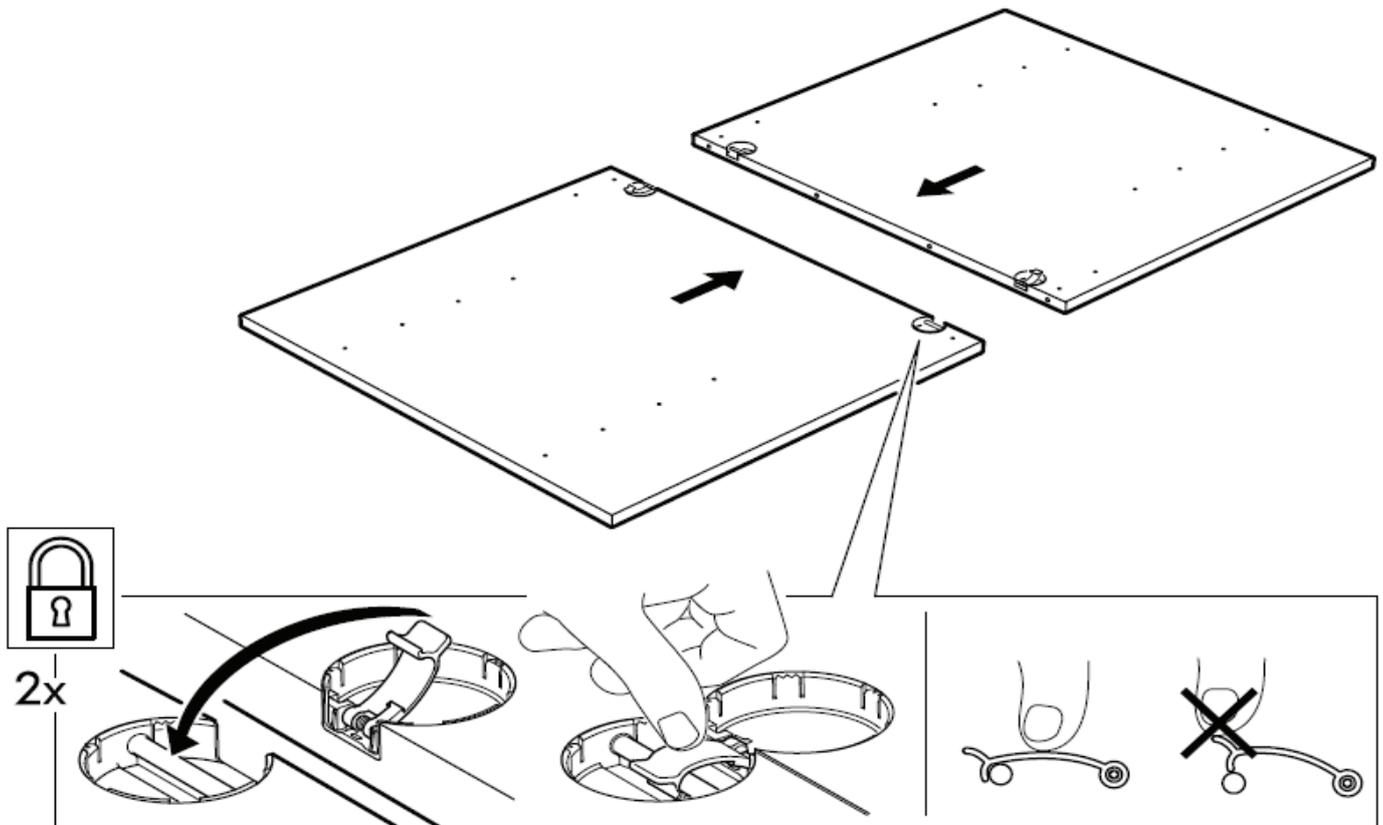
[10]

AVAILABLE
MARKS

- (g) Appropriate diagrams explaining how the two halves of the table slide apart revealing the spares leaves.

AVAILABLE MARKS

Method of locking (other functional alternatives will be considered):



Each leaf is prepared by having a recessed area for the locking clip to sit below the surface. As shown, the locking clip will hook on to a bar on the extra leaf, holding it in place.

All alternative answers will be considered.

Marks will be awarded for:

- Detail contained in sketches [4]
 - A method of locking the extra table leaves in place to prevent movement of the table leaves
- Quality of sketches [3]
- Detailed notes [3]

[10]

40

Total

40