
DESIGN AND TECHNOLOGY

9705/32

Paper 3

October/November 2017

MARK SCHEME

Maximum Mark: 120

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

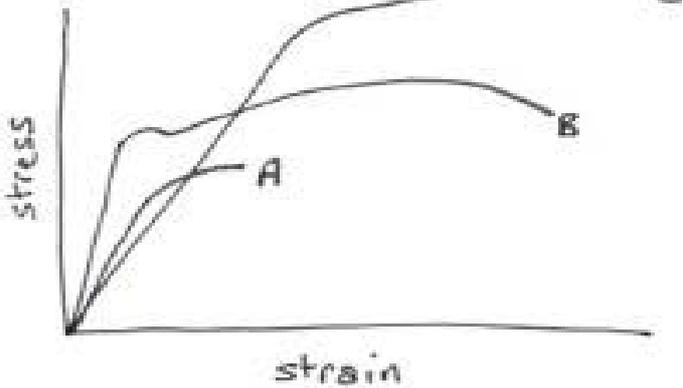
Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2017 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

| Question | Answer | Marks |
|----------|---|----------|
| 2(a) | <p>suitable material: 1 mark</p> <p>trough</p> <p>abs/polypropylene/HDPE appropriate hardwood for laminating / bending, accept pine aluminium alloy, brass. copper mild steel (with finish) stainless steel</p> <p>Reasons :</p> <p>will not react to moisture can be bent to required shape will hold shape when full look attractive in desired environment</p> <p>foot</p> <p>abs/polypropylene/HDPE appropriate hardwood cast iron(with finish)/aluminium alloy/brass</p> <p>Reasons :</p> <p>can be cast to shape (metals) can be moulded to shape (polymers) can support the trough easily accepts finish to match trough</p> <p style="text-align: right;">2 × 1</p> | 3 |
| 2(b) | <p>quality of description:</p> <p>fully detailed 3–7 some detail 0–2</p> <p>quality of sketches up to 2</p> | 9 |
| 2(c) | <p>explanation could include:</p> <p>change in process; change in materials; use of jigs, formers, moulds; simplification of design.</p> <p>quality of explanation:</p> <p>logical, structured 4–6 limited detail 0–3</p> <p>quality of sketches up to 2</p> | 8 |

| Question | Answer | Marks |
|----------|---|-----------|
| 3(a) | <p>plastic dip coating; Appropriate product e.g. bathroom rail, kitchen rack 1 Appropriate materials e.g. Mild steel, LDPE, Nylon 1 Reason e.g. humid, damp (bathroom/kitchen/outdoor) 1</p> <p>anodising; Appropriate product e.g. building cladding, screws 1 Appropriate materials e.g. Aluminium, magnesium, titanium, steel 1 Reason e.g. outdoor, to identify part, attractiveness 1</p> <p>varnishing; Appropriate product e.g. building cladding, screws 1 Appropriate materials e.g. Aluminium, magnesium, titanium, steel 1 Reason e.g. outdoor, to identify part, attractiveness 1</p> <p style="text-align: right;">3 × 2</p> | 6 |
| 3(b) | <p>quality of description: fully detailed, most stages covered 3–5 some detail 0–2 quality of communication up to 2</p> <p style="text-align: right;">7 × 2</p> | 14 |

Part B – Practical Technology

| Question | Answer | Marks |
|----------|--|---------------------|
| 4(a) | 50 N evidence of correct working 1, correct answer 2 | 2 |
| 4(b)(i) | A cast iron 1 reason 1 B mild steel 1 reason 1 C aluminium alloy 1 reason 1 | 6 |
| 4(b)(ii) |  <p data-bbox="316 1016 746 1218">Ultimate strength 1 Maximum stress 1 Fracture point 1 Breaking point reached 1 Elastic limit 1 Will not return to original shape 1</p> | 6 |
| 4(c) | <p data-bbox="316 1249 727 1413">explanation could include: Wear materials friction reduction Corrosion protection materials</p> <p data-bbox="316 1420 563 1480">clear, fully detailed limited detail</p> | 6 4–6 0–3 |

| Question | Answer | Marks |
|----------|--|----------|
| 6(a) | applications described e.g. CNC Router, miller, lathe 2 × 2 | 4 |
| 6(b) | explanation could include: | |
| 6(b)(i) | manufacturer speed of production quality control cost implications clear, fully detailed 6–8 most features described 4–5 limited detail 0–3 | 8 |
| 6(b)(ii) | customer cost reliability quality clear, fully detailed 6–8 most features described 4–5 limited detail 0–3 | 8 |

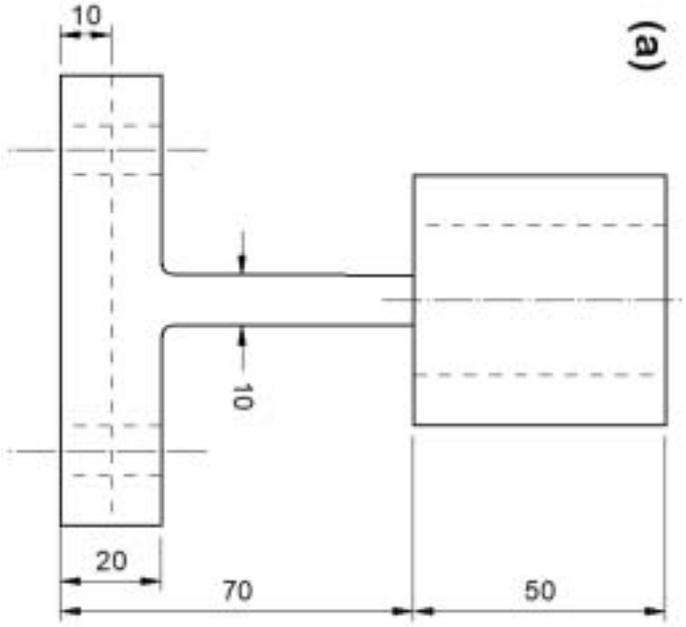
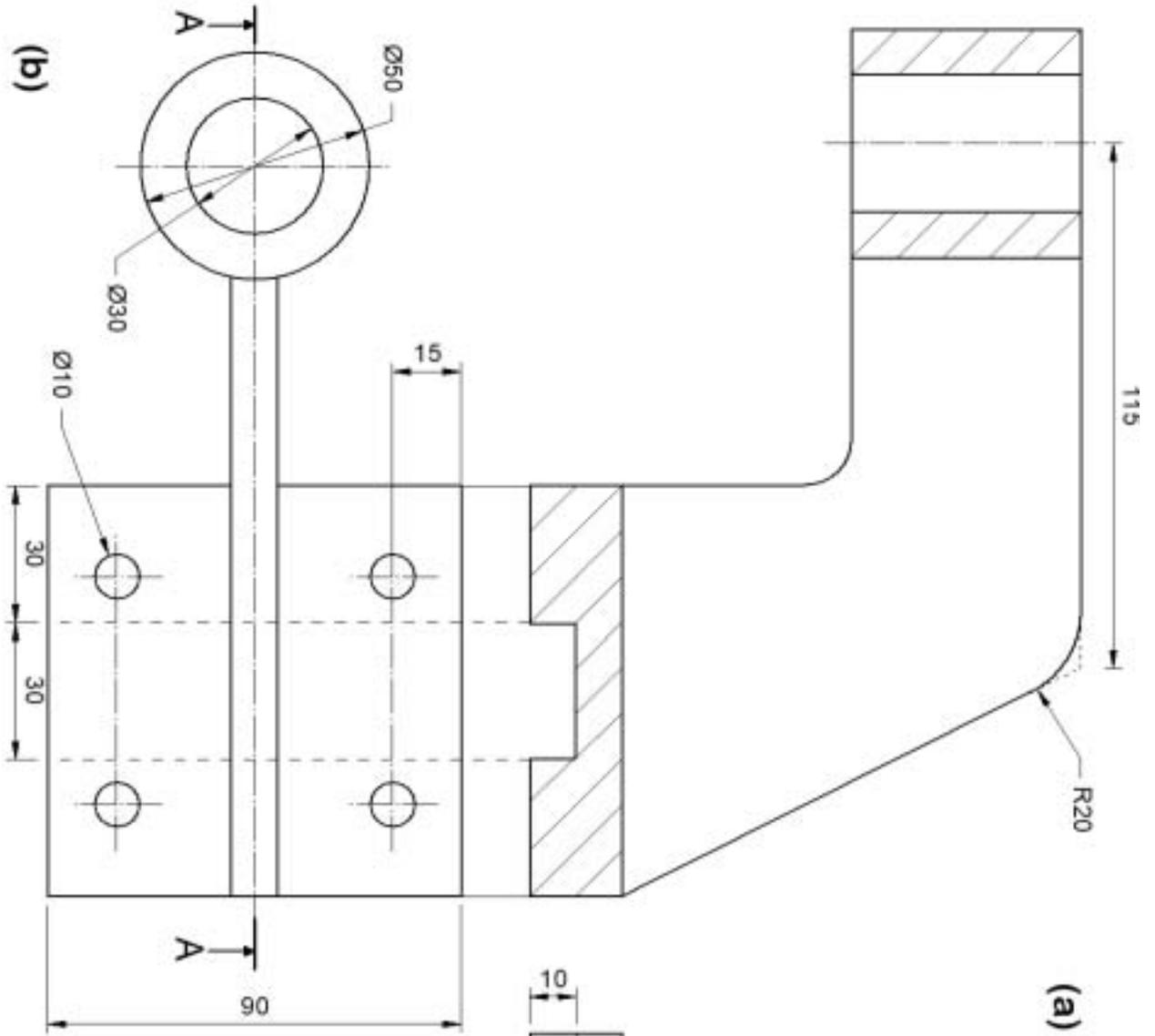
Part C – Graphic Products

| Question | Answer | Marks |
|----------|--|-------|
| 7 | scale 1 Cabinet 2 Sink unit 3 Window 2 Mirror 2 Shower tray 2 Bath 3 Layout 2 Accuracy 3 | 20 |

| Question | Answer | Marks |
|----------|--|-------|
| 8(a) | front elevation all detail 4 plan all detail 4 sectional elevation all detail 4 scale 1 accuracy 3 | 16 |
| 8(b) | dimensions 2 projection 2 | 4 |

| Question | Answer | Marks |
|----------|--|-------|
| 9 | Discussion could include: target market affordability / quality sale introductory offers market accessibility examples / evidence could be teenage / adult market specific placement promotions – celebrities, BOGOF examination of issues wide range of relevant issues 4–8 limited range 0–3 quality of explanation logical, structured 4–8 limited detail 0–3 supporting examples / evidence 4 | 20 |

Question 8 Insert



- 8 (a) front elevation 4
- plan 4
- sectional elevation 4
- scale 4
- accuracy 1
- (b) dimensions 3
- projection 2



Section B

| Question | Answer | Marks |
|----------|---|-----------|
| | <p>Analysis</p> <p>Analysis of the given situation/problem 0–5</p> <p>Specification</p> <p>Detailed written specification of the design requirements. At least five specification points other than those given in the question. 0–5</p> <p>Exploration</p> <p>Bold sketches and brief notes to show exploration of ideas for a design solution, with reasons for selection.</p> <p>range of ideas 0–5 annotation related to specification 0–5 marketability, innovation 0–5 evaluation of ideas, selection leading to development 0–5 communication 0–5</p> <p>Development</p> <p>Bold sketches and notes showing the development, reasoning and composition of ideas into a single design proposal. Details of materials, constructional and other relevant technical details.</p> <p>developments 0–5 reasoning 0–5 materials 0–3 constructional detail 0–7 communication 0–5</p> <p>Proposed solution</p> <p>Produce drawing/s of an appropriate kind to show the complete solution.</p> <p>proposed solution 0–10 details/dimensions 0–5</p> <p>Evaluation</p> <p>Written evaluation of the final design solution 0–5</p> | 80 |