

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

0445 DESIGN AND TECHNOLOGY

0445/13

Paper 1 (Design), maximum raw mark 50

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 must be read in conjunction with the question papers and the report on the examination.

• Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



| | Page 2 | | Mark Scheme: Teachers' version | Syllabus | Paper | |
|---|--------|--|--|--------------------|--------|--|
| | | | IGCSE – May/June 2012 | 0445 | 13 | |
| 1 | (a) | Accept any four additional suitable points – carry all items together, waterproof, easier to transport, easy to clean reduces carrying weight, easy access to small items (hooks, floats, bait etc). (no repeats of question) Accept drawings of any two suitable methods to provide mobility – single axle, double axle, three wheel system with jockey wheel, rollers, sledge style, carrying straps, etc. innovative approach Any suitable ideas. At least three different ideas for maximum marks. Pro rata if fewer. | | rying |) [4] | |
| | (b) | | | vheel, |) [4] | |
| | (c) | | | mum | | |
| | | Communication | | | | |
| | | Simple techni | e drawings displaying a low standard or limited rang ques | e of (0–2 |) | |
| | | | drawings displaying a good standard and a range of ques – shading/colour/annotation etc. | f (3–4 |) | |
| | | | quality drawings using a wide range of techniques w ation and detail | ith clear (5–6 |) | |
| | | Suital | bility | | | |
| | | | stic designs showing outlines only r more detail, sensible solutions that could work | (0–2 (3–4 | | |
| | | Accura | ate solutions, good fitness for purpose, detailed con | struction (5–6 |) [12] | |
| | (d) | Evaluation of each of the ideas. At least 3 evaluations up to 2 m each Selection and justification. (1+1) | | to 2 marks (0–6 |) | |
| | | | | (2) | [8] | |

| Page 3 | | Mark Scheme: Teachers' version | | Syllabus | Paper | |
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| | | IGCSE – N | lay/June 2012 | 0445 | 13 | |
| (e) | Qualit | ty of drawing | | | | |
| | Poor I | ine quality, proportions, | little detail | (1) | | |
| | Good | line work, use of colour, | , proportions, some detail | (2–3 | 3) | |
| | High standard throughout with a range of techniqu clearly all detail | | a range of techniques that | at show (4) | | |
| | Dimensions 2 or 3 overall dimensions only – 1 | | | | | |
| | | Additional detail | dimensions – 2 | (2) | | |
| | Const | truction details | | | | |
| | A simplistic approach showing little or no detail of construction to be used Most constructional detail may be obvious from overall views or with some annotation | | iction to be (0–2 | 2) | | |
| | | | ews or with (3–4 | •) | | |
| | | nstructional detail will be onal detail drawings as r | e clear with good annotation necessary | and (5–6 | S) [1 | |
| (f) | Suitab | ole specific materials sta | ated. | (2) | | |
| | Appro | (2) | | | | |
| (g) | (g) Suitable method stated.Good detailed description of: processes | | (1) | | | |
| | | | processes | (3) | | |
| | | | tools. | (2) | | |
| | | | | | [Total: 5 | |

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|---|--------|--|--|---------------------|-------|--|
| | | | IGCSE – May/June 2012 | 0445 | 13 | |
| 2 | (a) | Accept any four additional suitable points – cardboard greaseproof on one side, attractive with additional items, carparation to avoid contamination, carrying system, etc. (n repeats of question) | | | [4] | |
| | (b) | Accept drawings of any two different approaches to the construction of joints – based on slots, tabs or interlocking flaps, etc. | | g flaps, (2x2) | [4] | |
| | (c) | Any suitable ideas. At least three different ideas for maximum marks. Pro rata if fewer. | | kimum | | |
| | | Com | nunication | | | |
| | | Simpl techn | e drawings displaying a low standard or limited rang iques | ge of (0–2) | | |
| | | | drawings displaying a good standard and a range o iques – shading /colour/annotation etc. | of (3–4) | | |
| | | • | quality drawings using a wide range of techniques w ation and detail | vith clear (5–6) | | |
| | | Suita | bility | | | |
| | | Simpl | istic designs showing outlines only | (0–2) | | |
| | | Rathe | er more detail, sensible solutions that could work | (3–4) | | |
| | | Accur | rate solutions, good fitness for purpose, detailed cor | nstruction (5–6) | [12] | |
| | (d) | Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each | | to 2 (0–6) | | |
| | | Selec | tion and justification. (1+1) | (2) | [8] | |

| Page | 5 | Mark Scheme: Teachers' version | | Syllabus | Paper |
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| | | IGCSE – N | lay/June 2012 | 0445 | 13 |
| (e) | Quali | ty of drawing | | | |
| | Poor line quality, proportions, li | | , little detail | (1) | |
| | Good | line work, use of colour | r, proportions, some detail | (2–3) | |
| | High standard throughout with a clearly all detail | | h a range of techniques that | t show (4) | |
| | Dime | nsions 2 or 3 overall o | dimensions only – 1 | | |
| | | Additional deta | ail dimensions – 2 | (2) | |
| | Cons | truction details | | | |
| | A sim be us | | g little or no detail of constru | uction to (0–2) | |
| | | constructional detail ma | ay be obvious from overall vi | iews or (3–4) | |
| | | nstructional detail will b onal detail drawings as | e clear with good annotatior necessary | n and (5–6) | [′ |
| (f) | Suitat | ole specific materials s | tated. | (2) | |
| | Appro | ppriate reasons for choic | ce. | (2) | |
| (g) | Suitable method stated. Good detailed description of: | | | (1) | |
| | | | processes | (3) | |
| | | | tools. | (2) | |
| | | | | | [Total: 5 |

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|---|--------|---|--|---------------|------|------|
| | | | IGCSE – May/June 2012 | 0445 | | 13 |
| 3 | (a) | Accept any four additional suitable points – articulated or flexible, magnetic and non magnetic, adjust reach, hand grip etc. (no repeats of question) | | (no repeats | 1x4) | [4] |
| | (b) | Accept drawings of any two suitable designs using different mechanical principles – scissor action, levers, sliding, gears, rack and pinion, pulleys, chain, belt, Bowden cable etc. | | ars, rack and | 2x2) | [4] |
| | (c) | Any suitable ideas. At least three different ideas for maximum marks. Pro rata if fewer. | | imum | | |
| | | Communication | | | | |
| | | Simple techni | e drawings displaying a low standard or limited rang ques | | 0–2) | |
| | | Clear drawings displaying a good standard and a range of techniques – shading/colour/annotation etc. | | | 3–4) | |
| | | High quality drawings using a wide range of techniques with clear annotation and detail | | | 5–6) | |
| | | Suitat | oility | | | |
| | | Simpli | stic designs showing outlines only | (| 0–2) | |
| | | Rathe | r more detail, sensible solutions that could work | (| 3–4) | |
| | | accura | ate solutions, good fitness for purpose, detailed con | struction (| 5–6) | [12] |
| | (d) | Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each | | | 0–6) | |
| | | Selection and justification. (1+1) | | (| 2) | [8] |

| Page 7 | | Mark Scheme: | Teachers' version | Syllabus | Paper | |
|--------|--|---|-------------------|-----------|-------------|--|
| | | IGCSE – N | lay/June 2012 | 0445 | 13 | |
| (e) | Qualit | ty of drawing | | | | |
| | Poor line quality, proportions, little detail | | | | 1) | |
| | Good | Good line work, use of colour, proportions, some detail | | | 2–3) | |
| | High standard throughout with a range of techniques that show clearly all detail | | | | 4) | |
| | Dimer | nsions 2 or 3 overall dir | | | | |
| | | Additional detail | dimensions – 2 | (2 | (2) | |
| | Const | truction details | | | | |
| | A simplistic approach showing little or no detail of construction to be used | | | | 0–2) | |
| | Most constructional detail may be obvious from overall views or with some annotation | | | | 3–4) | |
| | All constructional detail will be clear with good annotation and additional detail drawings as necessary | | | 5–6) [12] | | |
| (f) | Suitable specific materials stated. Appropriate reasons for choice. | | (2 | 2) | | |
| | | | (2 | 2) [4] | | |
| (g) | Suitable method stated. | | (* | 1) | | |
| | Good detailed description of: processes | | (3 | 3) | | |
| | tools. | | (2 | 2) [6] | | |
| | | | | | [Total: 50] | |