UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2006 question paper

9705 DESIGN AND TECHNOLOGY

9705/01 Paper 1 (Written), maximum raw mark 120

This mark scheme is published as an aid to teachers and students, 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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

The grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

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Section A

1 (a) Two ergonomic requirements (2x1) **[2]**
e.g. finger size, hand size
Explanation of why each is important (2x1) **[2]**
e.g. to determine size for buttons, to make sure phone comfortably fits hand

(b) Two aesthetic requirements (2x1) **[2]**
e.g. Use of words such as stylish, modern appearance, hi-tech, silver in colour
Explanation of why each is important (2x1) **[2]**
e.g. to appeal to customers, to attract attention, to make people want to buy the product

[Total: 8]

2 (a) Appropriate explanations given (2x1) **[2]**
e.g. takes up less space, manufacturer does not have to glue stand together

(b) Sketch showing a reasonable degree of detail about assembled stand (0 - 3)
OR
Sketch showing good detail of assembled stand (3 - 6) **[6]**

[Total: 8]

3 Sketch showing lathe chuck (0 - 3)
OR
Metal shown in a lathe chuck (4 - 6)
OR
Metal shown in a 4 jaw chuck with clear explanation of how it would be held (7 - 8) **[8]**

[Total: 8]

4 (a) Would damage chisel (1)
Use a screwdriver (1) **[2]**

(b) Dowel rod would break (1)
Use a metal pin (1) **[2]**

(c) Would damage wooden vice jaws (1)
Use a metal vice (1) **[2]**

(d) Would damage/blunt plane blade (1)
Take the plane apart (1) **[2]**

[Total: 8]

5 (a) Gas - cooker
Electricity - kettle
Battery - clock (3x2) **[6]**

(b) e.g. Laminated chipboard (1)
Easily cleaned, hygienic surface, hard wearing surface (1) **[2]**

[Total: 8]

[Total Section A: 40]

Section B

6 (a) Suitable plastic named (1)
Appropriate reasons given (2x1) **[3]**
e.g. weatherproof, soft material

(b) Some understanding of process shown (0 - 2)
OR
Good understanding of process shown (3 - 4)
OR
Good understanding well communicated (5) **[5]**

(c) (i) Some understanding (1)
OR
Good understanding (2) **[2]**
e.g. Product is repeatedly tested until it breaks

(ii) Some understanding (1)
OR
Good understanding (2) **[2]**
e.g. Plate spreads the load over a larger area

(d) (i) Some understanding of process (0 - 2)
OR
Good understanding of process (3 - 4) **[4]**

(ii) Some understanding of the process (0 - 2)
OR
Good understanding of the process (3 - 4) **[4]**

[Total: 20]

7 (a) Suitable wood named (1)
Appropriate reasons given (2x1) **[3]**
e.g. weather resistant, does not splinter

(b) (i) Appropriate joint named (1)
Joint described (0 - 3) **[4]**

(ii) Some understanding of process (0 - 3)
OR
Good understanding of process (4 - 5) **[5]**

(c) Some understanding of required joining method (0 - 2)
OR
Good understanding of required joining method (3 - 4) **[4]**

(d) Some understanding of required design feature (0 - 2)
OR
Appropriate design feature well communicated (3 - 4) **[4]**

[Total: 20]

8 (a) Corrugated section shown (1)
Two flat outer boards shown (1)

(b) Is a stronger material (1)
Some understanding of why corrugated cardboard is stronger (1)
OR
Good understanding (2) **[3]**

(c) Screenprinting (1) **[1]**

(d) Piece A - Outer shape (0 - 2)
Folds (0 - 2) **[4]**
Piece B - Outer shape (0 - 2)
Folds and slots (0 - 2) **[4]**

(e) Some understanding of how chair would be assembled (0 - 3)
OR
Good understanding of assembly well communicated (4 - 6) **[6]**

[Total: 20]

Section C

9 (a) Finger cut-out (1) to allow tape to be removed (1) **[2]**

(b) Bar code (1) to give shop details about price and stock levels (1)
Contains 40% (1) of recycled card (1) **[4]**

(c) Gives shiny surface, protects surface, stops fading
Any two (2x1) **[2]**

(d) Uses more material, takes longer to make, more processes involved, more labour needed
Any two (2x1) **[2]**

(e) Issues identified (0 - 4)
Depth of discussion (0 - 4)
Examples used (0 - 2) **[10]**

[Total: 20]

10 (a) Injection moulding (1) **[1]**

(b) Number of identical units (1)
can be joined together (1) **[2]**

(c) Units could be unstable when stacked (1)
They need to be fixed together (1) **[2]**

(d) Three correct sizes given (3x1)
Calculation clearly explained (1) **[4]**

(e) **(i)** Some understanding of term used (0 - 3)
OR
Good understanding well communicated (4 - 5) **[5]**

(ii) Issues identified (0 - 2)
Depth of discussion (0 - 2)
Examples used (0 - 2) **[6]**

[Total: 20]

11 (a) Stop rusting (1)
Improve appearance (1) **[2]**

(b) **(i)** Powered plastic (1) is applied to hot metal (1) **[2]**

(ii) Galvanising (1) **[1]**

(iii) Varnish (1) **[1]**

(c) Issues identified (0 - 2)
Depth of discussion (0 - 2)
Examples used (0 - 2) **[6]**

(d) **(i)** Explanation of knock down fitting (0 - 2) **[2]**

(ii) Advantage (1) Disadvantage (1) **[2]**

(e) Two reasons identified (2x1)
Appropriate explanations (2x1) **[4]**

[Total: 20]