UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2005 question paper

0445 DESIGN AND TECHNOLOGY

0445/01 Paper 1 maximum raw mark 100

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 initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

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 minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Question no			Detail mark	Mark on script	
1	Appropriate chart		**1**		
	Correct information		**2**		
	Communication skills		**2**	**5**	
2	**(a)** Seat, handlebars, pedals		**1x2**	**2**	
	(b) Sensible improvements		**2x2**	**4**	
3	Paint/plastic coating		**1**		
	Oil		**1**		
	Stainless steel		**1**		
	Any external timber preservative		**1**	**4**	
4	Heat, sound, friction etc.		**2x2**	**4**	
5	**(a)** **(i)** Glueing/joints		**1**		
	(ii) Welding/solder/rivets		**1**	**2**	
	(b) Screws − countersunk or roundhead		**1**		
	Good sketch		**2**	**3**	
6	**(a)** Clear sketch of oscillating motion		**2**	**2**	
	(b) Clear sketch of linear motion		**2**	**2**	
7	Dimensions in correct places		**2**	**2**	
8	**A** = 12.5 N, **B** = 37.5 N		**1x2**		
	Appropriate calculation		**1**	**3**	
9	Customer order				
	Design	1 mark for each			
	Order materials	correct position			
	Manufacture				
	Despatch		**1x3**	**3**	
10	Two examples of anthropometrics		**2x2**	**4**	**40**

11 (a)	Accept any suitable points – stable in use, keeps water off floor, easy access for umbrellas, obvious use etc.	**1x4**	**4**	
(b)	Accept any suitable points – easy to identify, match surroundings, not too bulky, smooth edges etc.	**1x4**	**4**	
(c)	Any suitable ideas.			
	Communication			
	A simplistic approach	**0-2**		
	An appropriate approach	**3-4**		
	Good and clear approach	**5-6**		
	Suitability			
	Simplistic designs	**0-3**		
	Rather more detail, sensible solutions	**4-6**		
	Accurate solutions, good fitness for purpose, detailed construction	**7-9**	**15**	
(d)	Evaluation of each of the ideas	**0-6**		
	Selection justification	**2**	**8**	
(e)	**Quality of drawing**			
	Poor line quality, proportions, little detail	**0-3**		
	Good line work, use of colour, proportions, detail	**4-6**		
	High standard throughout	**7-8**		
	Dimensions	**2**		
	Construction details			
	A simplistic approach	**0-3**		
	An appropriate approach	**4-6**		
	Good and clear approach	**7-8**	**18**	
(f)	Suitable materials stated	**1**		
	Reasons for choice	**3**	**4**	
(g)	Suitable method stated	**1**		
	Good detailed description of process, including materials (2), processes (2) and tools (2).	**6**	**7**	**60**

12 (a)	Accept any suitable facilities. Tables and chairs, bar to stand at, outside area, music etc.	**1x4**	**4**	
(b)	Accept any suitable materials – card, balsa, plastic sheet, polystyrene block	**1x4**	**4**	
(c)	Any suitable ideas			
	Communication			
	A simplistic approach	**0-2**		
	An appropriate approach	**3-4**		
	Good and clear approach	**5-6**		
	Suitability			
	Simplistic designs	**0-3**		
	Rather more detail, sensible solutions	**4-6**		
	Accurate solutions, good fitness for purpose, detailed construction	**7-9**	**15**	
(d)	Evaluation of each of the ideas	**0-6**		
	Selection justification	**2**	**8**	
(e)	**Quality of drawing**			
	Poor line quality, proportions, little detail	**0-3**		
	Good line work, use of colour, proportions, detail	**4-6**		
	High standard throughout	**7-8**		
	Dimensions	**2**		
	Construction details			
	A simplistic approach	**0-3**		
	An appropriate approach	**4-6**		
	Good and clear approach	**7-8**	**18**	
(f)	Changes easy to make, easy to store, use of colours, designs straight to machines (CAM) Any **two** explained	**2x2**	**4**	
(g)	Suitable method described.	**1**		
	Detailed description of process, including materials (2), processes (2) and tools(2)	**6**	**7**	**60**

13(a)	Accept any suitable points – reliable, lightweight, does not disturb other passengers, battery operated etc.	**1x4**	**4**	
(b)	Accept any suitable outputs – buzzer, small electric shock, vibrator, music etc.	**1x4**	**4**	
(c)	Any suitable ideas			
	Communication			
	A simplistic approach	**0-2**		
	An appropriate approach	**3-4**		
	Good and clear approach	**5-6**		
	Suitability			
	Simplistic designs	**0-3**		
	Rather more detail, sensible solutions	**4-6**		
	Accurate solutions, good fitness for purpose, detailed construction	**7-9**	**15**	
(d)	Evaluation of each of the ideas	**0-6**		
	Selection justification	**2**	**8**	
(e)	**Quality of drawing**			
	Poor line quality, proportions, little detail	**0-3**		
	Good line work, use of colour, proportions, detail	**4-6**		
	High standard throughout	**7-8**		
	Dimensions	**2**		
	Construction details			
	A simplistic approach	**0-3**		
	An appropriate approach	**4-6**		
	Good and clear approach	**7-8**	**18**	
(f)	Suitable materials stated	**1**		
	Reasons for choice	**3**	**4**	
(g)	Suitable method stated.	**1**		
	Good detailed description of process, including materials (2), processes (2) and tools (2)	**6**	**7**	**60**

14(a)	Accept any suitable points – simple to use, easy to store, not too heavy, holds maximum amount of washing etc.	**1x4**		
(b)	Accept any suitable safety issues – parts cannot fall off, operated without hanging out of window, well secured in use, safety locking mechanism etc.	**1x4**	**4**	
(c)	Any suitable ideas.			
	Communication			
	A simplistic approach	**0-2**		
	An appropriate approach	**3-4**		
	Good and clear approach	**5-6**		
	Suitability			
	Simplistic designs	**0-3**		
	Rather more detail, sensible solutions	**4-6**		
	Accurate solutions, good fitness for purpose, detailed construction	**7-9**	**15**	
(d)	Evaluation of each of the ideas.	**0-6**		
	Selection justification.	**2**	**8**	
(e)	**Quality of drawing**			
	Poor line quality, proportions, little detail	**0-3**		
	Good line work, use of colour, proportions, detail	**4-6**		
	High standard throughout	**7-8**		
	Dimensions	**2**		
	Construction details			
	A simplistic approach	**0-3**		
	An appropriate approach	**4-6**		
	Good and clear approach	**7-8**	**18**	
(f)	Suitable materials stated.	**1**		
	Reasons for choice.	**3**	**4**	
(g)	Suitable method stated.	**1**		
	Good detailed description of process, including materials (2), processes (2) and tools (2).	**6**	**7**	**60**