OCR
RECOGNISING ACHIEVEMENT

GCE

Design & Technology

Advanced GCE **A2 H453**

Advanced Subsidiary GCE **AS H053**

Mark Schemes for the Units

January 2010

HX53/MS/R/10J

Oxford Cambridge and RSA Examinations

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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 should be read in conjunction with the published question papers and the Report on the Examination.

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Advanced Subsidiary GCE Design and Technology: Product Design (H053)

MARK SCHEMES FOR THE UNITS

F521 Advanced Innovation Challenge

Outlines initial thoughts, these are predictable/non-creative.	Outlines initial thoughts in some detail, some creative thinking.	Clearly outlines initial thoughts in detail, responding with an open mind showing unexpected and/or challenging ways of thinking.	Box 1,2
Analyses the problem at a superficial level that lacks depth Some consideration of a user/market resulting in a design brief.	Analyses some aspects of the problem. Identifies a user/market, resulting in a design brief.	Analyses problem in depth, responds in a way that allows scope for innovation. Identifies a user/market resulting in a clear design brief.	Box1,2,3 & 4
Produces a basic or superficial specification that is vague/generic.	Develops an adequate specification that gives some basic requirements of the product.	Develops a detailed specification that identifies the key features of the product.	Box 5
0 1 2 3	4 5 6	7 8 9	
Presents only a limited range of innovative/creative ideas	Presents a good range of innovative/creative ideas	Presents a wide range of innovative/creative initial ideas,	Box 6
using annotated sketching at a limited level with little detail of construction/materials Little or no reference made to the design specification.	using reasonable quality annotated sketching showing some detail of construction/materials. Some reference to the specification	using high quality annotated sketching showing full details of construction/materials. Good reference to the specification	Box 6
Presents only a limited and mainly subjective evaluation of ideas with little or no justification of decisions.	Presents an adequate and objective evaluation of ideas against the design specification and justifies most decisions.	Presents a detailed and objective evaluation of ideas against the design specification and justifies all decisions.	Box 6,7 &8
Presents a limited range of evidence to show the sources of inspiration and influences on the designing.. Limited reflection on their design and little/if any response to feedback from others.	Presents an adequate range of evidence to show the sources of inspiration and influences on the designing. Some reflection on their chosen design and response to feedback from others.	Presents a wide range of evidence to show the sources of inspiration and influences on the designing. Reflects on their chosen design and responds to feedback from others, making further improvements if necessary.	Box 6,7,8,9 &10
0 1 2 3 4	5 6 7 8	9 10 11 12	
Presents limited improvements, and limited evidence of modelling, experiments, testing, and modifications to their design,	Presents improvements, presents some evidence of modelling, experiments, testing, making modifications their design	Presents improvements, presents evidence of modelling, experiments, testing, making modifications to their design to define and refine it,	Box 11
Little if any consideration of materials, components or ingredients and methods of manufacture.	Some consideration of materials, components or ingredients and methods of manufacture.	Thorough consideration of materials, components or ingredients and methods of manufacture.	Box 11
Limited understanding of sustainability issues and how this affects their design. Produces a simplistic action plan for making that shows limited awareness of materials/ingredients/resources etc.	Some consideration of sustainability issues Produces a reasonable action plan for making, to include a list of materials/ingredients/resources, etc	Good consideration of sustainability issues etc . Produces a detailed action plan for making, to include a list of materials/ingredients/resources, etc.	Box 11, 12&13
0 1 2 3	4 5 6	7 8 9	
Records progress at various stages but limited detail and thought Use of materials and processes is limited as are any further modifications to their design.	Record and reflects on progress at various stages Selects and uses materials adeptly and makes further modifications to their design.	Records and reflects on progress in detail at various stages Selects and uses materials innovatively and creatively and further develops idea to define and refine it.	Box 14, 15, 16, 17 , 18 and photos 1, 2 &3
Product/model is finished to a poor standard/or is incomplete.	Completes a product/model to a good standard. Model/product accurately reflects design.	Completes a product/model to a high standard. Model/product accurately reflects design.	
Limited range of making skills apparent.	Demonstrates accuracy of making skills.	Demonstrates a range of making skills/ and or complexity.	
0 1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22	
Presents limited modifications to their idea, using basic annotated sketches.	Presents some realistic and detailed modifications to their idea, using annotated sketches.	Presents realistic and detailed modifications to their idea, using annotated sketches; improvements are creative.	Box 18
Produces a limited evaluation of their product identifying some strengths and weaknesses and shows limited consideration of the users/market.	Produces a reasonable evaluation of their product identifying some strengths and weaknesses and shows good consideration of the users/market.	Produces a detailed evaluation of their product identifying strengths and weaknesses and shows good consideration of the users/market.	Box 18
Some evidence of evaluation of their design against their product specification at a superficial level.	Reasonable evaluation of their design against their product specification.	Evaluates their design thoroughly against their product specification	Box 18
0 1 2 3	4 5	6 7 8	

Initial Thoughts	Designing	Development	Making	Evaluating	Total /60

Name:	Candidate No:	Centre No:	Examiner	
				F521/01

02 Paper

Two outline presentations to an expert/ panel will be presented; answers will be in the form of written material supported by annotated sketches. (10 Marks each). QWC is assessed in P and S. Pand S are annotated on script where found, the only other annotation that can be included is the use of a vertical line against anything that is completely irrelevant to question.

P relevant points/issues raised	up to 4 marks
Points must cover each bullet point within question and relate specifically to their product and the overriding question.	
One bullet point or one relevant point	1mark
Two bullets points or one bullet point and one relevant point	2 marks
All three bullets points or two bullet points and one relevant point	3 marks
All three bullets points **and** one further **relevant** point	4 marks
S supporting example and/or sketches	up to 3 marks
Must relate to the three bullet points	

QWC quality of written communication
(up to 3 marks (this is not annotated on paper as it is an overview of whole discussion)

QWC Level descriptors

3 Marks: Presents information and arguments in a clear and concise manner, using appropriate technical phrases and high quality written communication skills.
2 Marks: Presents information and arguments in a reasonably clear and concise manner, with limited use of technical phrases and reasonable written communication skills
0-1 marks: Presents information and arguments in a manner that lacks a clear and concise approach, with little or no use of technical phrases and basic written communication skills.

Use the whole mark range, including maximum marks or zero where appropriate.

1 Discussion should include:

- modifications you would make to your product to make it more ergonomically friendly to a broader range of users, eg the elderly, the disabled or children, ergonomics is the fit between people and the things they do and the objects they use, discussion must relate to product designed in challenge but can cover any aspects of useability, e.g. shape of the product or part of it for comfort, strength when pushing, pulling, gripping etc, layout of buttons, size of text, use of colour, noise levels, **use** of anthropometrics (reference to these measurements alone is not ergonomics, must relate to user interaction with product. Useability issues relating to product, age and ability, anthropometry and inclusive design.
- materials and manufacturing techniques that could be used to achieve better ergonomics and useability. No marks for manufacturing method of product unless related to improving its useability
- The cost implications of any modifications to improve ergonomics of their product.
- user research and testing, empathetic approaches to design, understanding and imagining user, barrier free design

2 Discussion should include:

- information about the market their product would be aimed at and fashion trends that appeal to them, how they could be targeted – discussion must relate to the product designed in challenge, modifications to product to target particular markets and trends. The importance of visual impact to attract interest/sales aesthetics, colour and texture, styles and trends e.g. minimalist, eco design, organic foods etc, must relate to their product – USP's, marketing/advertising techniques
- commercial viability of product and expected volume of sales and pricing, this should relate to improvements made in bullet point 1. Product life cycle, growth – maturity-decline etc. product use and the feasibility of the product, comparisons with other products that are aimed at same market and are successful
- scale of production and modifications to the design to make it more economically viable, details of chosen materials and manufacturing techniques all related to the changes made to product to appeal to broader range and fashion trends.

Grade Thresholds

Advanced GCE Design and Technology: Product Design (H453)
Advanced Subsidiary GCE Design and Technology: Product Design (H053)
January 2010 Assessment Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
F521	Raw	80	58	52	46	40	34	0
	UMS	80	64	56	48	32	24	0
F522	Raw	120	97	87	77	67	57	0
	UMS	120	96	84	72	60	48	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H053	200	160	140	120	100	80	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H053	7.6	27.6	61.2	84.1	97..6	100	192

XXXX candidates aggregated this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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