AS
DESIGN AND TECHNOLOGY (PRODUCT DESIGN)
FOR TEACHING FROM 2017

2018 EXAMINATION

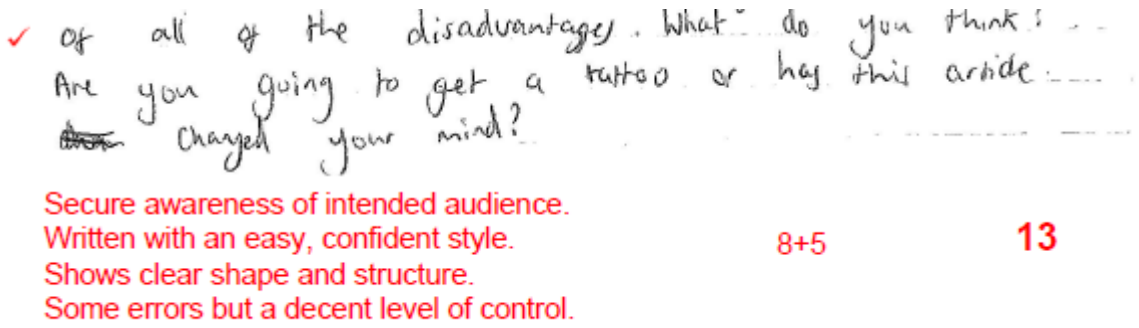
UNIT 1 OER MATERIAL (ANNOTATED)

The interactive version of this exemplar is available on our Online Exam Review website (oer.wjec.co.uk).

Printing with/without comments and annotations

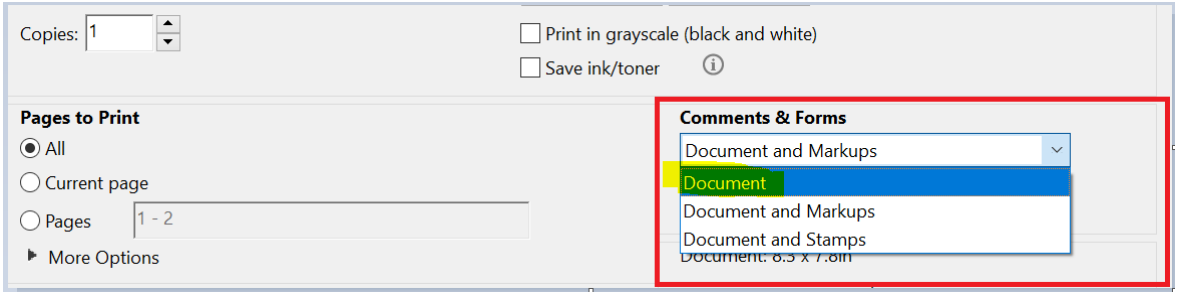
The exemplar in this booklet includes comments/annotations from the Principal Examiner.

If you are printing this exemplar, the printed version will by default include the Principal Examiner's comments/annotations:



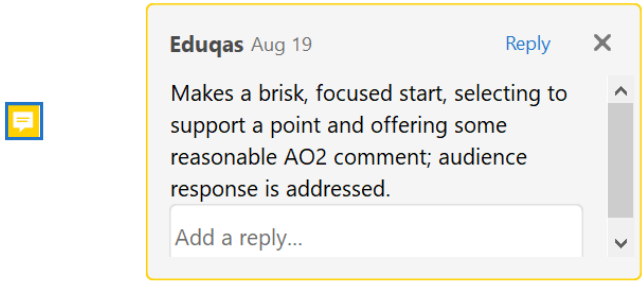
If you would like to print a 'clean' copy of the exemplar, this can be done by adjusting the print settings as follows:

After selecting *File* > *Print*, you will need to change the option in the dropdown menu under 'Comments and Forms' to 'Document'. This will then print the document without the Principal Examiners' comments.



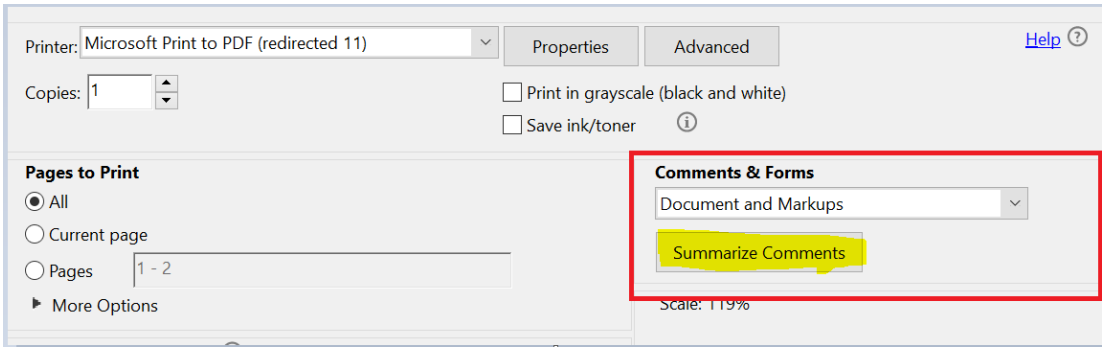
Printing comments with sticky notes

If you are printing the exemplar in this document, the Principal Examiner comments contained in the sticky notes will not automatically be printed.

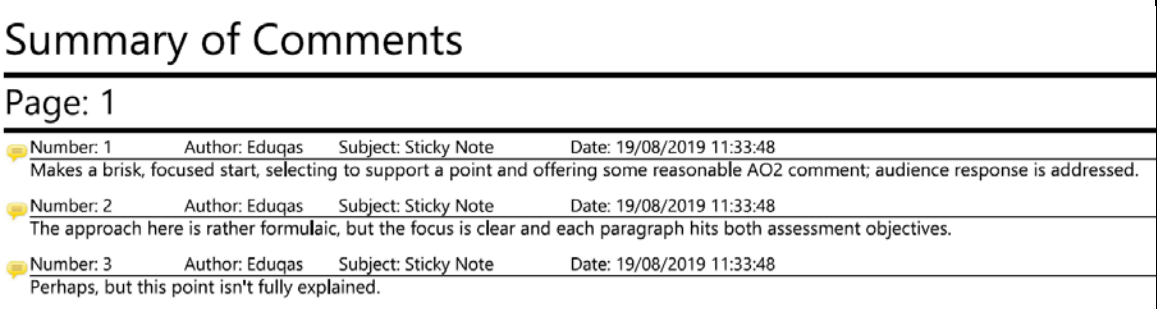


If you would like your printed copy to include the Principal Examiner comments you will need to adjust the printer settings as follows:

After selecting *File* > *Print*, you will need to click 'Summarize Comments' in the 'Comments & Forms area of the print settings.



The Principal Examiner comments will then be printed at the end of each page of exemplar:



WJEC GCE AS DESIGN AND TECHNOLOGY

UNIT 1 PRODUCT DESIGN

MARK SCHEME SUMMER 2018

Q1	Computer Aided Design/Computer Aided Manufacture (CAD/CAM) is a common method of designing and manufacturing products used by many companies.			
		AO3	AO4	Mark
(a)	Explain the basic principle used by the two CAM machines named below.		✓	4
	Each response must have a brief explanation of the CAM process. **Guidance to markers** Incorrect/no response. 0 Mark Brief explanation of process. 1 Mark Detailed explanation of processes. 2 Marks Example: Laser cutter/engraver. A laser cutter/engraver uses a laser light (1) focused on a material to vaporize material at a high temperature (1). 3D printer. A 3D printer constructs a solid object from thousands of slices (1). Those layers bonded together to form a solid object (1). Accept any other appropriate responses. i.e. particle dust.			

		AO3	AO4	Mark
(b)	State an appropriate CAM machine for the batch manufacture of this decoration and explain the advantages and disadvantages of your selected machine.		✓	4

The response must name a CAM machine and explain advantages and disadvantages of the selected CAM machine.

Guidance to markers

Incorrect/no response. *0 mark*

Candidates need to address both advantages and disadvantages to achieve full marks.

If a candidate lists each response you may award. *1 mark*

If a candidate elaborates each response you may award. *2 marks*

Maximum of 3 marks if the advantages or disadvantages are solely listed.

Laser Cutter (one advantage and one disadvantage 1 mark for each)

Laser produces little waste material reducing material costs.
Laser will accurately produce the desired design.
Laser produces a burnt edge that will need further finishing before sale.
When programmed lasers can reproduce the same shape many times relatively quickly.

OR

CNC Router (one advantage and one disadvantage 1 mark for each)

A router will produce a decoration with clean edges saving finishing time.
A router will produce more waste in the form of sawdust increasing material costs.
A router will have a radius on all internal corners and is less accurate.
When programmed routers can reproduce the same shape many time.

Accept any other appropriate response.

Examiner only

Answer **all** *questions.*

1. Computer Aided Design/Computer Aided Manufacture (CAD/CAM) is a common method of designing and manufacturing products used by many companies.

(a) Explain the basic principle used by the **two** CAM machines named below.

(i) Machine: Laser cutter [2]

Principle: The basic principal of a laser cutter is to cut through or engrave a material. Doing so using a concentrated beam of light/heat. It can be used to make details on products

(ii) Machine: 3D printer [2]

Principle: A 3D printer is a CAM machine that can build a model/product through building/layering up a certain material like ABC for example It is usefull to make models as its quick & simple

(b) The CAD drawing below shows a proposed design for a wooden hanging decoration. The decoration will be manufactured from 3 mm plywood.

State an appropriate CAM machine for the batch manufacture of this decoration and explain the advantages and disadvantages of your selected machine. [4]

Name of CAM machine: 2D design

2D design comes with multiple advantages, for example it allows the user to create a detailed design. Using CM 2D designs also allows you to save the design so you can come back to it as well as send it anywhere. However 2D design can be expensive as a program and the designer has to be trained to use it which will take time

Q2	Working in a manufacturing environment can be a hazardous activity and as a result suitable safe working practices must be employed.			
		AO3	AO4	Mark
(a)	Explain the meaning of the sign shown below.		✓	2
	The response must state that the yellow triangle is a warning sign. *The flames indicate a flammable material.* *Incorrect/no response.* *0 Mark* *Identification of the warning sign.* *1 Mark* *Identification of flammable material.* *1 Mark*			
		AO3	AO4	Mark
(b)	Write a detailed risk assessment for a machine or piece of equipment you have used.		✓	6
	The response must state the equipment or machine being used. **Guidance to markers** Incorrect/no response. 0 mark *One mark can be awarded if the candidate mentions the use of or reference to the five step risk assessment.* *1 mark* • ***Identify the hazard*** *1 mark* *Examples:* Hand contact with sanding belt when in use. Entanglement in belt when in use. Dust. Material Jamming/wedging in moving parts. Check machine. • ***Decide who might be harmed*** *1 mark* *Examples:* User/Individual operating the equipment. Individuals in close proximity of the equipment. • ***Evaluate the risk and establish precautions/best practice*** *1 mark* *Examples:* Chance of hand contact, Individuals given clear instructions and demonstrations. Face guards to be used. Entanglement when in use, Individual use PPE, Hair tied back, jewellery/lose items removed. Material jamming, Individuals given clear instruction on the safe use/best practice with machine. • ***Record any significant findings*** *1 mark* *Examples:* Identify any issues following the assessment being carried out on the Linisher/Sander. Complete a record of any incidents that have occurred on the linisher/Sander. • ***Review the risk assessment and update if required*** *1 mark* Review use of linisher/sander annually. Review use of linisher/sander following an accident. *Accept any other appropriate response.*			

Examiner only

2. Working in a manufacturing environment can be a hazardous activity and as a result suitable safe working practices must be employed.

(a) Explain the meaning of the sign shown below. [2]

flammable

This sign indicates a warning of a flameable object or risk of fire, you can see this from the picture of ~~a flame~~ a flame and because ~~it~~ a black triangle and yellow ~~fill~~ inside the sign indicates warning

(b) Write a detailed risk assessment for a machine or piece of equipment you have used. [6]

Name of machine or piece of equipment: Pillar drill

~~For a~~ To do a risk assesment on a pillar drill you need to first look for any hazards it will have. For example if the ~~safte~~ safety stop buttom is clearly visible and working. You would also need to check that the drill bit is in securly and all mechanisms are in working order. Other assesments would be checking that theres open space around the drill to prevent someone from bumping into to the user another risk that would need checking is the quality of the machine, ~~are~~ is the drill bits sharp and rotating handle isn't stiff. Assesments should also be inplace to warn ~~abo~~ user about wearing PPE such as goggles & a apron. Any risks that have been noticed need to be written down and made aware of to boss/teacher as well as assesed on how hazardous the risk is.

2603U101 03

5

Q3	Products are often manufactured from a range of individual components. Study the photographs below of a stackable chair.			
		AO3	AO4	Mark
(a)	State a possible method of manufacture for the seat and shaping the legs.		✓	2
	*Each response must name a process used: **1 mark** for each appropriate response.* **Guidance to markers** *Incorrect/no response.* *0 mark* Seat Responses may include injection moulding or compression moulding. *1 mark* Shaping the legs. Responses may include: Bent around former or jig. *1 mark* *Accept any other appropriate response.*			
		AO3	AO4	Mark
(b)	The seat and frame will need to be joined to form a functioning chair. Using notes and sketches explain and justify a suitable fixing method.		✓	6
	Response must demonstrate a clear understanding of a suitable method of joining dissimilar materials together, suitable illustrations and justified comments. *i.e. riveting, mechanical nut and bolt, self-tapping screw.* **Guidance to markers** *No supporting illustration/sketch max 3 Marks.* **Brief description:** **1-2 Marks** The mild steel legs could be attached to the plastic seat using a series of rivets, these could be quickly and easily used in the assembly line/process. Simple diagram with no supporting notes. **More Detailed description:** **3-4 Marks** The plastic/polymer seat could be attached to the formed mild steel legs using a series of cold/Pop rivets. This semi-permanent method/process is suitable because it could be carried out on a production/Assembly line by unskilled workers and is a quick easy method to attach dissimilar materials using standard fixing components. Simple diagram with supporting notes. **Detailed and justified description:** **5-6 Marks** The plastic/polymer seat could be attached to the formed mild steel legs using a series of cold/pop rivets. This semi-permanent method/process is suitable because it could be carried out on a production/Assembly line by unskilled workers and is a quick easy method to attach dissimilar materials using standard fixing components. Using this method avoids the use of any additional heat which could melt a thermoplastic seat. A semi- permanent joint like a pop-rivet is suitable as it will allow for replacement either the chair or leg component if they are damaged or fail during the life of the product.			

Examiner only

3. Products are often manufactured from a range of individual components. Study the photographs below of a stackable chair.

(a) State a possible method of manufacture for the seat and shaping the legs.

(i) Seat: Injection moulding ✓ [1]

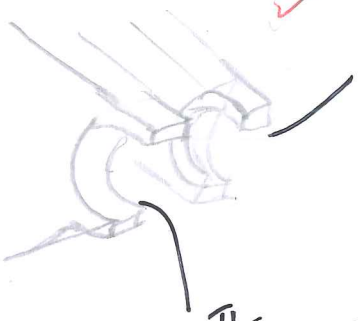
(ii) Shaping the legs: ~~extrution~~ Forging [1]

Examiner only

(b) The seat and frame will need to be joined to form a functioning chair. Using notes and sketches explain and justify a suitable fixing method. [6]

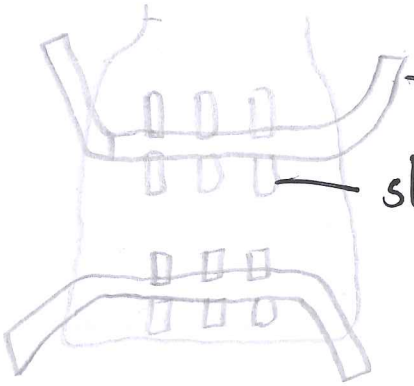
To join the legs to the chair a suitable method could be having joints ~~on~~ in the base of ~~chair~~ chair that the legs could slot into

For example



This could be done easily when the chair is being made, adding/ ~~the~~justifying the mould or way it made

This will allow ~~it to~~ the legs to slot in easily and be supported



-using this method the legs can be taken out and replaced as well if they breakf.

- For extra support ~~the~~ allong the extra joints/slotes the legs could be glued or screwed in, to prevent them comming out

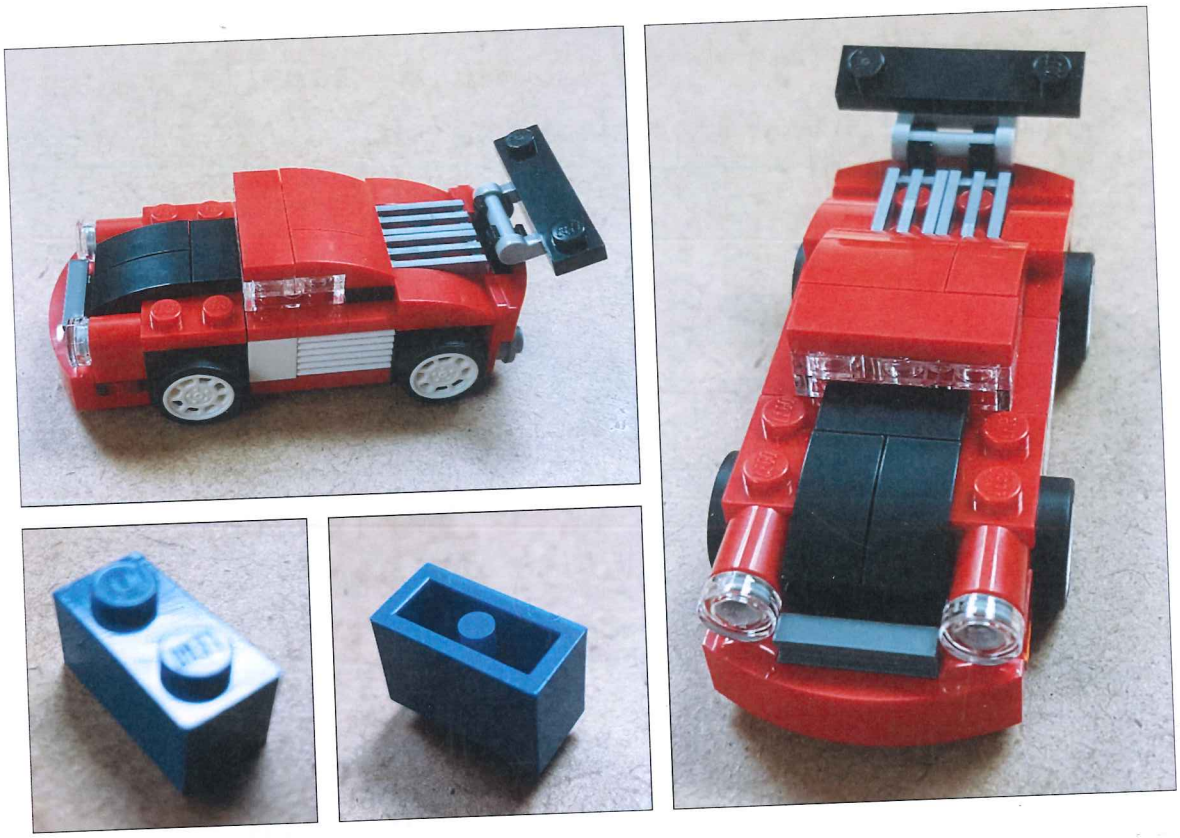
3

4

Q4	Polymers are materials that are widely used in many every day products and toys.			
		AO3	AO4	Mark
	Evaluate the characteristics and physical properties of ABS and rubber that make it suitable for the toy shown in the photographs above.	✓		8
	Guidance to markers *Focus of the response should be on the characteristics and properties of ABS and rubber and their relevance to the function and form of the lego elements.* Characteristics are the elements a designer can influence or change in the product/material. ABS • ABS liquefy which allows it to be easily *manufactured through an* injection moulding process and then subsequently recycled. • Complex shapes can be formed. • *Self-finished face, the surface is as good as the mould no secondary finishing needed.* *Rubber* • *Can be moulded into a suitable shape.* • *Has a high level of surface friction.* Property is the distinguishing features of a materials behavior. ABS • Acrylonitrile Butadiene Styrene (ABS) is an opaque thermoplastic. • ABS are impact resistance and toughness. • *Easy to colour, bright colours make it suitable for a child's toy.* • *Flexible and will allow for the friction fit.* • *ABS is durable, the bricks can be repositioned many times without being damaged.* • *Non-toxic.* • *Water proof.* *Rubber* • *Tensile strength it can be stretched over the wheel.* • *Elasticity it will return to its original shape without heating.* • *It is durable.* • *Water proof.* PC (polycarbonate) for transparent bricks, as ABS can't be made transparent. Polycarbonate parts on the other hand have too much friction when in contact with other polycarbonate parts, making them extremely hard to disassemble. Both materials must be addressed for the full 8 marks.			

Examiner only

4. Polymers are materials that are widely used in many every day products and toys.



Evaluate the characteristics and physical properties of ABS and rubber that make them suitable for the toy shown in the photographs above. [8]

ABS is suitable ~~for~~ for this toy as its a ~~therma~~ thermoplastic which means it can be easily heated and ~~made into this shape~~ used. ABS can also be injection moulded well to produce the shape. It can also come in a range of colours and doesn't need a finish so it won't be harmfull if a child puts it in their mouth. Having a choich of colours also ~~gives~~ provides a better range providing for a larger audience. Rubber is also good for this as it prorides grip making the ~~toy~~ tires for the toy more stable and more suitable for a car. Rubber can also be made easily into the ~~stop~~ shape of the wheel. Both ~~Also~~ of ~~being~~ them are also hard wearing allowing the product to last longer. Rubber is elastic aswell so can tightly fit to wheel~~longer~~,

Q5	The phrase 'Form follows Function' has become the belief of many designers in the 20th and 21st century.			
		AO3	AO4	Mark
	Discuss this statement with reference to the work of James Dyson.		✓	8
	Student response must demonstrate understanding of the work of James Dyson and how it relates to the question. Responses must make reference to at least one of Dysons products. Examples: • James Dyson's upright vacuum cleaner and air blade were innovative developments in the market and displayed this with new and innovative forms, these forms helped to identify the different elements and functions of products. • Simple elements used in the development of his CSYS task lights. • The use of the cyclone technology was his big innovation and this was celebrated in the design in the form of a clear collection tube allowing the user to see the cyclone in action. • The shape of the air blade required users to place hands vertically into the air flow. • With the original Dyson DC01 the general form for the vacuum was more traditional with a round cylindrical body containing the cyclone and a flat wedge-shaped head with small wheels at the back. Many of the functioning elements that were later to be celebrated were hidden. • The use of bright colours allowed Dyson to visually break up the form of what was a more traditional looking product i.e. Vacuum, the washing Machine, Air blade. The use of injection moulding ABS polymer and polycarbonate parts has allowed Dyson to develop and greatly refine this initial design a range whose forms respond to the function of the component parts, and this is emphasized by his use of bright eye-catching colours as in his vacuum, air blade and hair care products. • The cyclone that developed the powerful suction was housed above a set of filters that help deposit the dust and dirt into a clear transparent cylindrical chamber. • The user is able to see when the dust chamber is full and needs to be emptied this allows the vacuum to function as efficiently as possible providing the user is prepared to empty it. • The functioning elements of the vacuums have become more evident as Dyson has developed his range. With the Dyson Ball the function of the different elements in the vacuum have been reflected in the form of the vacuum as a whole and the smaller components, the large ball has allowed the vacuum to be much more manoeuvrable as well as lowering the centre of gravity (the whole form looks heavy at the bottom with the large ball base). • Using the ball in the base allows improved function as the ball has increased the manoeuvrability of the vacuum and the use of a large number of smaller cyclones has been reflected in the cluster of cyclones at the top of the collection cylinder. • The cyclones responsible for its powerful, suction remain housed above the filters and deposit dust and dirt into the ever-present clear transparent chamber. • The Dyson vacuum cleaner, air blade, Fans, hair care and lights all have a functional aesthetic that looks interesting and highlights the different functional elements in the design.			

Guidance to markers

Focus of the response should be on James Dyson products their function and form.

Incorrect/no response. 0 Mark

Level 1 1-2 Marks

- The candidate has a simplistic knowledge of the issues associated with the question.
- Limited use of terminology and technical language.
- The candidate has limited knowledge of the aesthetic qualities of the product and/or consideration for the user in their design.
- The candidate will express basic ideas clearly, if not always fluently. Answers may deviate from the question or not be relevant.
- Grammar, punctuation and spelling may be weak impacting on effective communication.

Level 2 3-4 Marks

- The candidate has a basic understanding of the issues associated with the question.
- Satisfactory use of terminology and technical language.
- The candidate has some general knowledge of the aesthetic qualities and consideration for the user in the design aspects, but they are not always considered in detail.
- The candidate will express straightforward ideas clearly, if not always fluently. Answers may deviate from the question or be weakly presented.
- There may be some errors of grammar, punctuation and spelling but is still able to communicate the issues.

Level 3 5-6 Marks

- The candidate demonstrates a clear understanding of the issues associated with the question.
- Good use of terminology and technical language.
- The candidate has demonstrated real knowledge about the aesthetic qualities, linked to James Dyson's philosophies. There are descriptive comments about some elements of the needs of the end user.
- The candidate will express moderately complex ideas clearly and fluently, through well-linked sentences and paragraphs. Answers will be generally relevant and structured.
- There may be occasional errors of grammar, punctuation and spelling.

Level 4 7-8 Marks

- The candidate demonstrates a specific ability to analyse questions, takes into account a wide range of factors and has a clear understanding of the issues associated with the question.
- Very good use of terminology and technical language.
- The candidate has demonstrated detailed knowledge about the aesthetic qualities, linked to James Dyson's philosophies. There are detailed descriptive comments about specific elements of the needs of the end user.
- The candidate will express complex ideas extremely fluently. Sentences and paragraphs will follow on from each other smoothly and logically. Answers will be consistently relevant and structured.
- There will be few, if any, errors of grammar, punctuation and spelling.

Examiner only

5. The phrase 'Form follows Function' has become the belief of many designers in the 20th and 21st century.

Discuss this statement with reference to the work of James Dyson. [8]

Marks will be awarded for content of the answer and the quality of written communication.

The statement suggests that the way the product is made and quality of it is better than having a product that does something new. For example James Dyson didn't try and make a new product he tried to improve on all ready existing products (mainly hoovers). He was the first to create bagless hoovers and created dual cyclone technology to improve hoover not make a new product. He always tried to make sure his product were up to standards to make sure they always worked, not to make money but to improve the industry. He also put form first when he released parts for his product instead of trying to get people to buy knew ones which is why his products are so well priced because he puts form in front of function.

✓ ✓ ✓ ✓

(4)

2603U101 07

Q6	Household appliances often reflect the audience they have been designed for. Study the two images below.			
		AO3	AO4	Mark
(a)	The starting point for a designer is a product analysis. Write a critical analysis of one of the products pictured above, justify each observation.	✓		8

The response must contain justified observations.

Incorrect/no response. *0 Mark*

Identification of suitable comments.

Telephone A

Handset is attached to the telephone so the user cannot move away from the phone when using it.

Limited number of functions on the telephone so the user would purchase additional units for the caller display, answer phone.

Good contrast between buttons and telephone so it could be used by partially sighted person.

Large buttons for functions and numbers would allow for use by elderly.

Limited range of functions would make it easy to use.

Dated design, would not appeal to younger 'on trend' individuals.

OR

Telephone B

Handset is not attached to the telephone so the user can move away from the phone when using it.

Wide number of functions on the telephone so no requirement for the user to purchase additional units for the caller display, answer phone.

Button light when using the phone buttons so it could be used by partially sighted person.

Small buttons for functions and numbers could be difficult for elderly of disabled users.

Wide range of functions some of which may be difficult to set up and use.

Maximum of 4 marks for 4 points only.

Accept any other appropriate response.

		AO3	AO4	Mark
(b)	Write four fully justified specification points that will ensure the requirements of the user are met.		✓	8
	The response must use four justified points: Examples; • The handset must have good colour contrast for the ease of use for the visually impaired user. • The hand set must look modern and stylish to allow the user to have 'on trend' items in their home. • The handset must clearly identify the key interfaces of mouth piece and ear piece to avoid any confusion when answering the phone. • Comfortable to hold while it is in use so it can be used for longer periods of time. • The device must be suitable for both left and right-handed users this will be cheaper for the manufacturer and does not discriminate between users. The device must be suitable for mass production to allow for thousands to be manufactured. • The device must be designed using standard parts to reduce costs. **Guidance to markers** Minimum of 4 specification points explained. It must…….. or It should …….. or It could ……. Accept any justified specification point that is relevant. *Incorrect/no response.* 0 mark A relevant point that has not been justified. 1 mark A Justified specification point that is relevant. 2 marks *Accept any other appropriate response.*			

(c)		AO3	AO4	Mark
	In the space provided produce a possible design for the handset. You are required to use a combination of 2D and 3D freehand drawings.		✓	16
	(i) An annotated design proposed that displays evidence of your consideration of user interface, function and style. *The response must contain a possible design for the handset. You are required to use a combination of 2D and 3D freehand drawings. Together with evidence of consideration of user interface, function and style.* *Incorrect/no response.* 0 mark D2 or 3D images that have very little detail or supporting annotation. 1-2 marks Idea developed with both 2D and 3D illustrations, some supporting annotation that is relevant to the user interface, function and style. 3-4 marks Ideas developed with both 2D and 3D illustrations, supporting annotation is relevant to the design and indicates a clear understanding of the problem. 5-6 marks Ideas developed with both 2D and 3D illustrations, supporting annotation is relevant to the designs user interface, function and style which demonstrates a detailed understanding of the problem. 7-8 marks (ii) Labelling and justifying the use of materials in your design. Polypropylene plastic, ABS, silicon, Poly Carbonate, rubber, etc. Properties/Characteristics: • We are expecting the candidates to mention • Range of colours. • Finishing. • Recyclability. • Toughness. • Electrical insulation. • Weight. • Flexibility. • Resistant to corrosion. • Texture. **Guidance to markers** No mention of specific materials characteristics or properties. 0 Mark Very little detail or justification of material selection. 1 Mark Materials named for the product that includes one or two characteristics or properties. 2 Marks Materials named for the product that includes two or three characteristics or properties. 3 marks Detailed description of named materials for the product that includes four or characteristics or properties. 4 marks			

	(iii) The quality/presentation and communication of your 2D/3D drawings. *There MUST be a mixture of 2D and 3D design sketches generated. Sketches should include annotation.* ***Candidates are not expected to render, colour or shade your design work.*** **Guidance to markers** The emphasis is on the quality of communication and presentation of design ideas. 2D or 3D images that have very little detail or supporting annotation. 1 mark Idea developed with both 2D and 3D illustrations, some supporting annotation that is relevant to the design. 2 marks Ideas developed with both 2D and 3D illustrations, supporting annotation is relevant to the design and indicates a clear understanding of the problem. 3 marks Ideas developed with both 2D and 3D illustrations, supporting annotation is relevant to the design and indicates a detailed understanding of the problem. 4 marks	

(d)		AO3	AO4	Mark
	Justify how your design meets the four points indicated in your design specification.		✓	8
	Candidates must be able to link the design they have produced to their specification. *Each specification point must be identified in the design with clear explanation of how it meets the design specification.* The candidate must write four justified points. Examples: • The handset must have good colour contrast for the ease of use for the visually impaired user This has been carried out through the use of dark grey ABS for the keys in contrast to the white of the hand set. • The hand set must look modern and stylish to allow the user to have 'on trend' items in their home. The design has been based on the work of…….. • The handset must clearly identify the key interfaces of mouth piece and ear piece to avoid any confusion when answering the phone. This has been achieved through the use of textured surfaces on the area that is held. • Comfortable to hold while it is in use so it can be used for longer periods of time. This has been achieved through the use of a silicone/rubber/textured surface that the user holds when operating the phone. **Guidance to markers** *Incorrect/no response* 0 mark A relevant point that has not been linked to the design or justified. 1 mark A Justified specification point that is linked to the design or justified. 2 marks			

6. Household appliances often reflect the audience they have been designed for. Study the images below.

Telephone A

Telephone B

Examiner only

(a) The starting point for a designer is a product analysis. Write a critical analysis of **one** of the products pictured and justify each observation. [8]

Telephone: A

- large buttons / numbers - This makes it easy for the elderly or visualy impaired to be able to see / use.
- Very basic and simple - This means that it lacks in some more modern luxuries ~~that~~ making it more limited but also simple for the elderly.
- large Phone grip (no need for answer button) - The phone is easy to hold to your ear and talk ~~to~~, being quick to grab with no need for a button, especially for the old.
- wired connection - The phone cannot be taken further than the wire or walked aroun the house, limiting the area of use, for the elderly this is fine as they are less likely to do this.
-

Examiner only

Problem

It is important that independent visually impaired persons have access to stylish modern household equipment. A land line phone is important for easy communication and must be easy to operate.

Design Brief

You are asked to design the hand set only for a stand-alone land line phone that is modern in style. The hand set must allow the user to quickly distinguish the mouth piece from the ear piece.

(b) Write **four** fully justified specification points that will ensure the requirements of the user are met. [8]

Point 1: ~~It should allow~~ Buttons should be large, this will allow the user to see them clearly and allow ease of use 2

Point 2: It should be free standing meaning the user doesn't have to look for the base making less of a hassle for someone visually impaired 2

Point 3: Ear and mouth piece ~~send~~ should be clearly presented allowing the user to easily see what end to use again to allow ease of 2

Point 4: The ~~product~~ phone must not have any sharp edges ~~or~~ other areas to harm as user may not see it and could harm themselves making it unsafe. 2

Examiner only

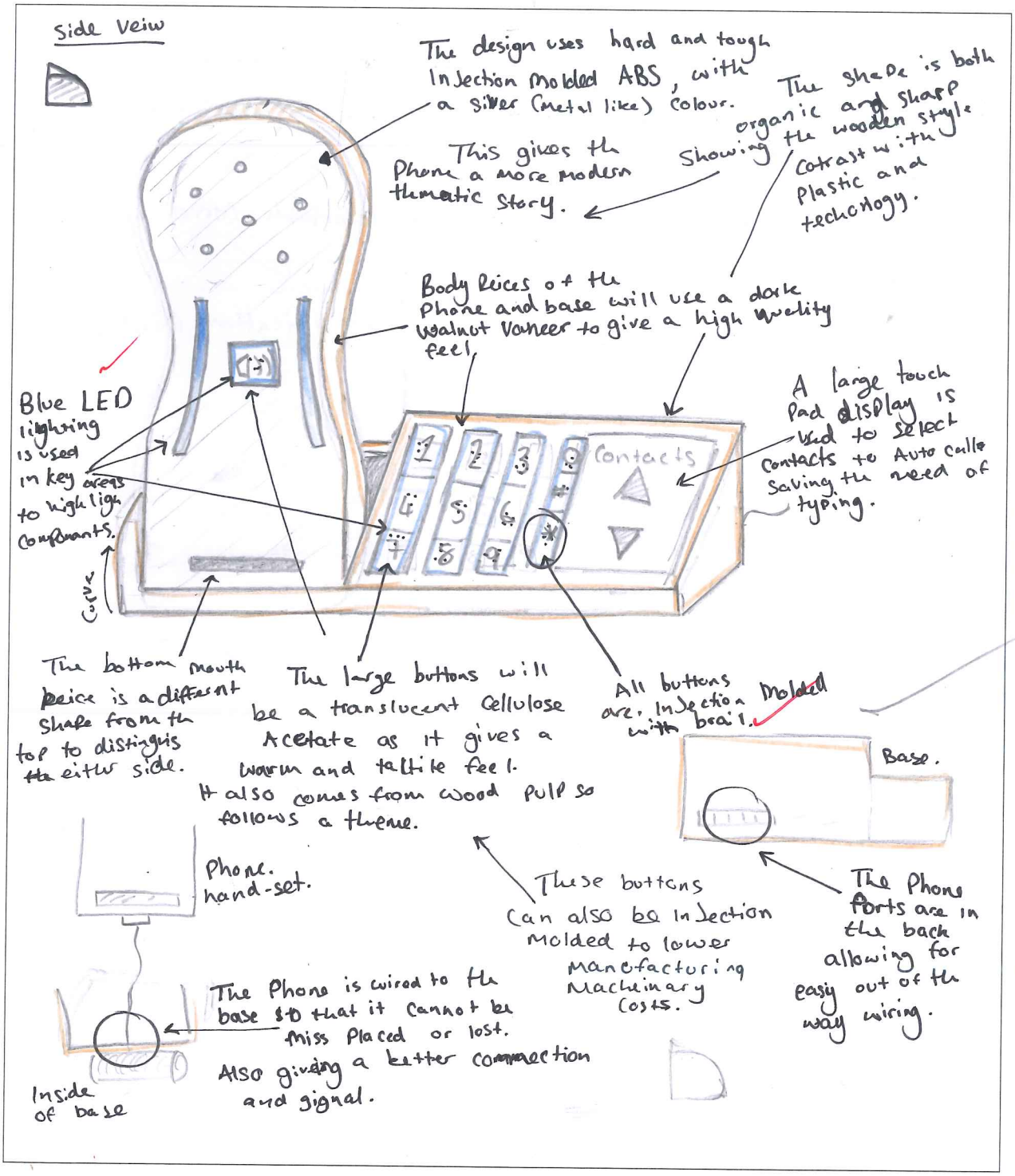
(c) In the space provided produce a possible design for the handset. You are required to use a combination of 2D and 3D freehand drawings.

Marks will be awarded for:

(i) An annotated design proposed that displays evidence of your consideration of user interface, function and style. [8] 6

(ii) Labelling and justifying the use of materials in your design. [4] 3

(iii) The quality/presentation and communication of your 2D/3D drawings. [4] 3
You are not expected to render, colour or shade your design work.



Examiner only

(d) Justify how your design meets the four points indicated in your design specification. [8]

I was able to design a phone that successfully met ~~by~~ my design specification. for example the buttons are 12mm² in size meaning they're large and can be easily seen by the user. Also being clear & bold to make it easier to use. Due to the base being flat with a large surface area it is also free standing & and can support it self upright. To make the ear & and mouth piece visible, I designed them to be diferent to colours & opisite sides ~~so that that~~ of the numbers so its clear to the user and there easily ~~identiable~~ identifyable. The shape of the model is also smobth and rounded over so no harm can be done, using injection moulding aswell to create & a smobth finish. ~~and~~

2 2 2 2

34

END OF PAPER

SUMMARY

Candidates should be advised to read the question carefully in order to ensure that all elements are understood and are also included in their response.

There were a number of instances where the responses throughout were not detailed enough to gain the higher level of marks.

Well-planned and structured responses score well. These responses contain clear, and specific details relating to the question. They also show accuracy in terms of spelling, punctuation and grammar. An increasing number of candidates require more structure and planning in order to organize information clearly and coherently.

Generic terms, particularly in naming materials (together with their characteristics or properties) are still used by candidates and are therefore not given credit. For example: wood, plastic, metal, as opposed to oak, MDF, ABS and steel.

In question 5 responses varied considerably; responses generally require more structure and planning, whilst ensuring that ALL elements of the question are covered. Majority of candidates were able to write about the designer but very few if any really talked about his work in form and function.

Centres should continue to advise candidates to use the mark allocation indicated at the end of each question to guide the depth of response required and manage time effectively.

Centres should also be advised to remind candidates that answers could be amplified with detailed labelled sketches and/or diagrams where appropriate; many of the answers were unfortunately brief with a few words and simple sketches not allowing the candidate to fully explain the response. Quality of the sketches needs to be worked on by centres