GCE

Design & Technology

H005/01: Principles of fashion and textiles

AS Level

Mark Scheme for June 2022

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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 marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7 .Award No Response (NR) if:

- there is nothing written in the answer space

Award Zero '0' if:

- anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9. A*ssistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.*

10. For answers marked by levels of response: Not applicable in F501

a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
BP	Blank Page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
	Tick
	Cross
CON	Confused (replaces the question mark)
BOD	Benefit of doubt
KU	AO1 – Knowledge and understanding
APP	AO2 – Apply knowledge and understanding
AN	AO3 - Analyse
EVAL	AO4 - Evaluation
^	Omission
NAQ	Not answered question
SEEN	Noted but no credit given
TV	Too vague
OFR	Own figure rule
REP	Repetition

12. Subject Specific Marking Instructions

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper
- the mark scheme.

You should ensure that you have copies of these materials.
You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet Instructions for Examiners. If you are examining for the first time, please read carefully Appendix 5 Introduction to Script Marking: Notes for New Examiners.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

Question			Answer	Mark	Guidance
1	a(i)	6.3b	Possible metals may include: • Silver (1) • Copper (1) • Tin (1) • Iron (1) • Nickel (1) • Brass (1) • Gold (1) • Stainless steel (1) • Titanium (1) • Aluminium (1) • Any other suitable response.	2	In each case: One mark for identifying metal that is suitable for the highlighted process. Specific reference to the context in the question is needed for marks to be awarded. Do not accept Steel, too generic.
	(ii)		Performance characteristics may include: • Are easy to use and sew with by hand or sewing machine (1) • Are lightweight (1) • Are easy to weave/knit into fabric (1) • Are skin friendly (1) • Comfortable to wear (1) • Are biocompatible (not harmful or toxic to body/living tissue) (1) • Are washable therefore suitable for smart textile applications (1) • Are flexible (1) • Are resilient (1) • Offer good thermal conductivity (1) • Have antibacterial properties (1) • Have antistatic properties (1) • Have low tolerance to disinfectant, bleach or chlorine (1) • Cannot be tumbled dried/ironed (1) • Have enhanced mechanical properties (1). • Any other suitable response.	**2**	In each case: One mark for identifying **other** performance characteristics (both positive/negative). Specific reference to the context in the question is needed for marks to be awarded. Do not credit ‘conductive’ or ‘conducts electricity’. *These threads make use of the combination of a highly conductive metal and the robustness and tensile strength of synthetic filaments or threads spun from natural fibres.*

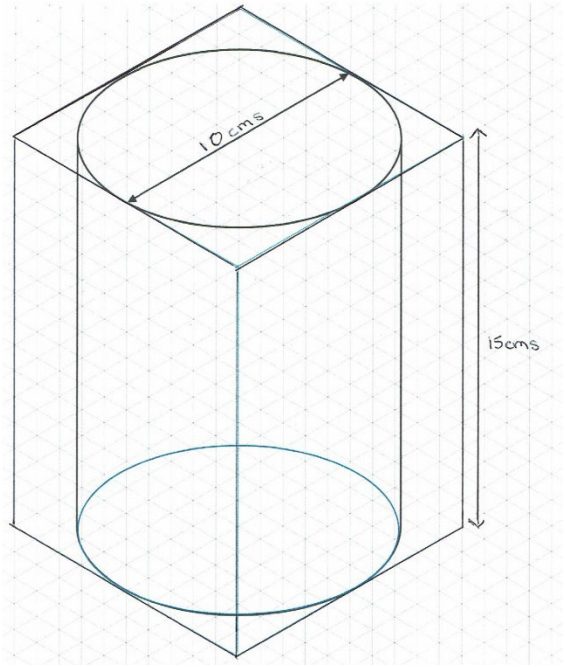
	b		Possible reasons may include: • Cotton is strong/durable (1) – Therefore, serves as protection for the metal conductive fibre (1). • Cotton is soft/comfortable (1) – Therefore, provides a soft backing if the product is going to be worn against skin (1). • Cotton is a good insulator (1) - Therefore, protects the metal conductive fibre from heat, particularly when ironing (1). • Cotton provides stability (1) – Therefore, keeps the metal conductive fibre in place/stable within the fabric structure (1). • Cotton fibre conducts heat (1) – Therefore, enhances properties of resulting fabric to suit different applications (1). • Cotton fibre has natural anti-bacterial properties (1) – Therefore, enhances properties of resulting fabric to suit different applications (1). • Cotton helps to minimise tarnishing, particularly through washing (1) – Helps to maintain overall appearance and performance of threads (1). Helps prevent weakening of metal fibres during washing (1). • Any other suitable response.	**4**	In each case: One mark for stating a reason why cotton could blend with a conductive metal to create a conductive sewing thread. One mark for justifying why this blend is suitable. Specific reference to the context in the question is needed for marks to be awarded. Mix and match approach to be taken with bullet points. Do not accept natural fibre, too generic. *Most conductive textile materials are based on the blending of metals for their conductive properties, and other fibres (natural or synthetic) for their mechanical properties such as flexibility and tensile strength.*

	c		Possible factors may include: **Designer needs to consider the following factors:** • Fabric care and washability (1) – Electrical components, like conductive threads, need to be insulated during washing to prevent damage (1). • Designer needs to consider flexibility of fabric for specific use (1) – The fabric should be flexible enough to carry the transmission threads, so that clothing is flexible/moveable enough to be wearable/function properly (1). • Designer needs to consider properties of the fibres/fabric (1) – How these will fulfil a user need/requirement (1) for example, merge with sensing capabilities to suit a specific user need (1). • Designer needs to consider user allergies (1) – Especially if it is next to the skin because of impact on end user (1). • Designer needs to consider technical and practical function (1) – How the product looks or makes the user feel (1). To enhance special features (1) to improve user comfort (1). • Viability (1) – How textile applications with conductive threads have a positive impact on a user's lifestyle (1). • Any other suitable response.	**4**	In each case: Up to two marks for explaining a factor a designer needs to take into consideration when evaluating how conductive threads improve functionality for a user. Specific reference to the context in the question is needed for marks to be awarded. Mix and match approach to be taken with bullet points. *One of the main aims in considering the impact of conductive textiles is to improve the user's lifestyle when interacting and using the product. This can be through the use of materials, the design or the ease of use.*

	d*		**Indicative content:** Candidates will consider the advantages of capitalising on the features and methods used in existing products that use conductive threads to inform and enhance new products. The following points providing a base for discussion: A designer will examine and investigate existing products, taking into consideration all the stages involved, from the initial concept through to the marketing. This research should help to ensure that a new product design will further meet the requirements of its stakeholders and users. Designers often start by looking at the work of other designers and existing products and analysing the choices that have been made. They study how well a product does its job, consider how successfully the product meets these criteria and decide what could be changed to improve it. It is important that the designer is able to identify the features of a product that make it either a success or failure, particularly in the use of conductive threads. In doing so, the designer can ensure that all mistakes are rectified, and the new product is enhanced. For example; **Gibbs and Asada** conducted experiments using a wearable sensing garment integrated with conductive fibres to continuously detect joint movement, specifically in the hip and knee, and found that it was effective for joint monitoring. This idea/concept is now being developed further for improved medical use in a range of textile applications facilitating technological advancement by integrating the functionality to become inherent within the garment, not just an add-on, thus making the garment more flexible, resilient, and easy to process. **Jacky Puzey** - Digital embroiderer of new fabrics, uses conductive thread because it's washable and runs well in the	**8** If candidate does not provide an analytical/evaluative response then only L1 can be awarded.	**Level 3 [6-8 marks]** The candidate has a clear understanding of why it is important for a designer to analyse and evaluate existing products that use conductive threads as part of the design process. They produce a thorough discussion in relation to the question by explaining the importance of carrying out product analysis as part of the design process. The discussion is clear and a number of points are exemplified in relation to the use of conductive threads in textile applications, with relevant examples evident and in context. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples.* **Level 2 [3-5 marks]** The candidate has a reasonable understanding of why it is important for a designer to analyse and evaluate existing products that use conductive threads as part of the design process. They produce a sound discussion in relation to the question by explaining the importance of carrying out product analysis as part of the design process. The explanation is sufficient, with some points made in relation to the use of conductive threads/technology, with some relevant examples touched upon.

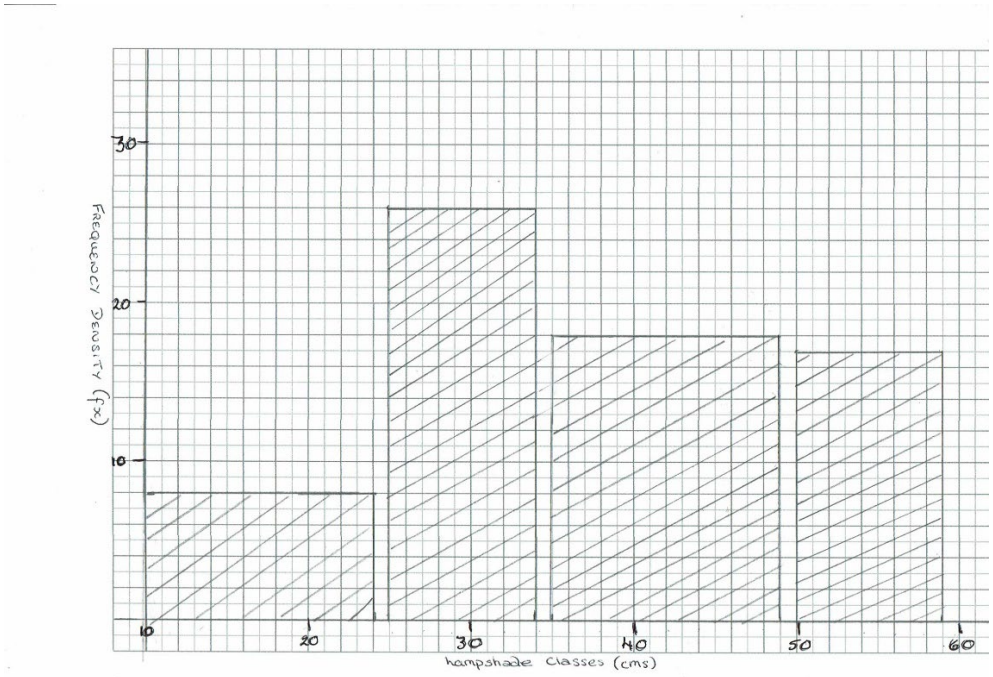
			industrial embroidery machines, she can now develop ideas for new products incorporating sensor and lighting elements within various textile applications. With increasingly sedentary lifestyle, fitness and its importance are something that designers understand striving to produce increasingly 'live' or functional garments, which in turn has triggered a **revolution in nanotechnology**. For example, **Google's Project Jacquard** has incredible capacity and can make textile applications/clothing touch sensitive. Evaluating existing products and applications that utilise conductive threads helps to: • avoid copying other designers' work, which would be plagiarism. • identify features or aspects of existing products that could be improved, e.g reducing the cost, adding extra features, making it easier or more comfortable for consumer to use, or making it look more attractive to certain groups • identify technologies or ideas that could be transferred or applied to a new function or area of conductive application The research from analysing existing products can be collated and used to inform the design specification and design ideas - A design specification can also help work out the cost of manufacturing a product, including how much material is needed and what machinery is required. The percentage profit can be worked out from this and can be improved by lowering production costs, e.g by using cheaper materials or fewer workers. The objective of product development and enhancement through the use of conductive threads/technology is to nurture, preserve and increase a company's profit by satisfying a consumer demand.		*There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.* **Level 1 [1-2 marks]** The candidate has a basic knowledge of why it is important for a designer to analyse and evaluate existing products as part of the design process. Any reference to the use of conductive threads is limited. The response contains no analysis or evaluation, with few or no relevant examples. *The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.* **0 marks** No answer or answer not worthy of credit.

			How easy the product is to use through observations of the consumer using existing products, e.g like the addition of conductive fibres into the fingertips of gloves to act as an interface to monitor various actions, can be used to reveal strengths and weaknesses. Observing people helps to understand their needs. Identifying a mistake/problem means it can be rectified in the new product ensuring the same mistake isn't made again, leading to a more successful design. Re-designing existing products enables costs to be cut, margins to be increased and ultimately more profits to be made. • Any other suitable response.		

Question			Answer	Mark	Guidance
2	(a)		The candidates are required to show that the dimensions are as requested: 10cms diameter and 15cms length  	3	Award three marks as follows: One mark for showing dimensions. One mark for showing base. One mark for showing construction box around cylinder.

	(b)		The candidates must convert the size of the material for one lampshade to mms. Width of one lampshade: 85cm x 10 = 850 mm Depth of one lampshade: 40cm x 10 = 400 mm (1) Note: The candidate may convert tolerance of 7 mm to cm at this point and follow calculations through. **Calculation of Material width and depth [2 marks one for each calculation]:** **Minimum width** = (3 x (850* + 7)) + 7 = (3 x 857) + 7 = 2571 + 7 = 2578 mm (1) **Minimum depth** = (5 x (400* + 7)) + 7 = (5 x 407) + 7 = 2035 + 7 = 2042 mm (1) The candidates should now convert the mms back to cms. Minimum width: 2578 / 10 – 257.8 cms Minimum depth: 2042 / 10 = 204.2 cms (1)	**4**	Award four marks as follows: One mark for conversion from cm to mm. One mark for calculating minimum width of material. One mark for calculating minimum depth of material. One mark for conversion from mm to cm. If correct answer is given without working out shown award full marks. Where an incorrect answer is given working out should be used to credit appropriate marks. *Allow error carried forward (ECF) where correct working out is shown.

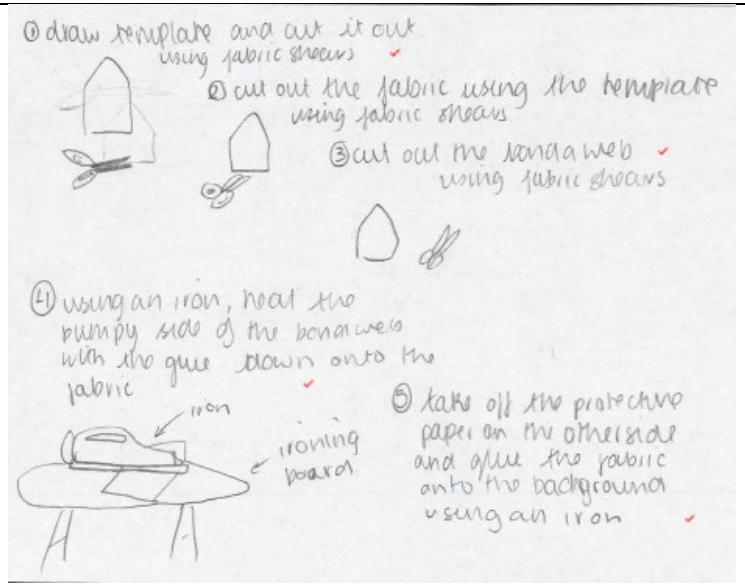
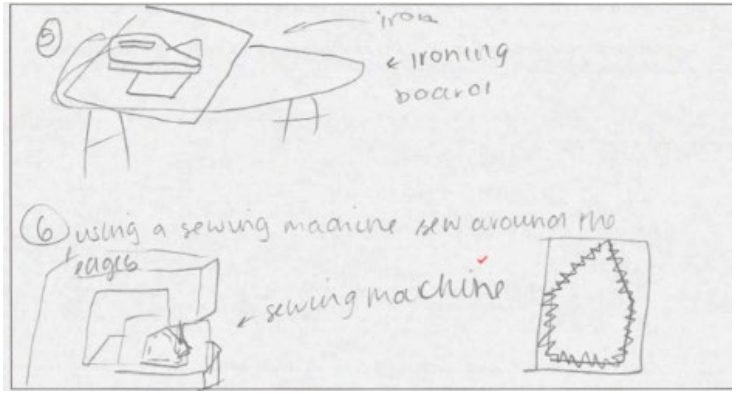
	(c)		The divisor for the ratios is 7+8 = 15 (1) Diameter of smaller lampshade = (diameter of larger lampshade/15*) x 7 = (45/15*) x 7 = 21 cms (1) Height of smaller lampshade = (height of larger lampshade/15*) x 7 = (20/15*) x 7 = 9.3333r cms = 9cms to 0 decimal places (1)	**3**	Award three marks as follows: One mark for calculating the divisor. One mark for calculating diameter of smaller lampshade. One mark for calculating height of smaller lampshade. If correct answer is given without working out shown award full marks. Where an incorrect answer is given working out should be used to credit appropriate marks. *Allow error carried forward (ECF) where correct working out is shown.
	(d)(i)		**To calculate frequency density (fx)** Frequency density (fx) = <u>frequency (f)</u>	**2**	Award two marks as follows: One mark for completion of top two rows in table.

			Class width **Lampshade diameter cms (d) size classes** / **Frequency (f)** / **Frequency density (fx)** $10 \geq d \leq 25$ / 135 / 9 $25 > d \leq 35$ / 260 / 26 $35 > d \leq 50$ / 270 / 18 $50 > d \leq 60$ / 170 / 17		One mark for completion of bottom two rows in table.
	(ii)			**2**	Award two marks as follows: One mark for correctly labelling both axes. One mark for correctly plotting histogram. Allow error carried forward (ECF)

Question		Answer		Mark	Guidance
3	(a)		**Indicative content:** **The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end to end process.** **Basic appliqué method:** • Make pattern pieces for the sections of the building • Pin onto the fabric to be applied and cut out/ cut out shapes or design. • Remove pattern piece. • Position on the backing fabric for the chair. • Pin and tack in place – an alternative could use bonda web or similar product. See below. • Set up the machine. Attach open toe applique foot if preferred. Use same colour thread in top and on the spool. Choose stitch. • Machine stitch /sew using a machine zig-zag/satin zig-zag/blanket stitch/heirloom stitch. Decorative stitches such as a scalloped satin stitch and a blind hem stitch could also be used. • *Stitching an exterior corner of the building - stitch to the very edge of the appliqué and stop at the right side of the stitch with the needle down in the fabric. Raise the presser foot and pivot around the needle to continue stitching the appliqué with the left side of the stitch. The stitches will overlap at each corner to give a neat, regular finish.* • Reverse secure threads at the start and finish of the stitching.	**6** All processes demonstrated must relate to the chair. If candidate does not provide an analytical/evaluative response then only L1 can be awarded.	**Level 3 [5-6 marks]** The candidate demonstrates a good level of detail of the process needed to work one of the machine stitched applique buildings onto the fabric of the chair using technical terms and considering any relevant equipment, machinery and materials. Sketches, if used will be clear and supported with relevant notes. The process includes all relevant stages. **Level 2 [3-4 marks]** The candidate will demonstrate a sound level of detail of the process needed to work one of the machine stitched applique buildings onto the fabric of the chair using some technical terms and there will be some consideration of any equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The process includes some relevant stages. **Level 1 [1-2 marks]** The candidate will demonstrate a limited level of detail of the process needed to work one of the machine stitched applique buildings onto the fabric of the chair with a limited use of technical terms and there will be a basic consideration of any equipment, machinery and materials required. Sketches, if used, will be unclear with only basic notes to accompany them. Few relevant stages are included. **0 marks**

			• Remove pins/tacking and trim loose ends. • Press. **Fusible appliqué method 1:** • Trace the design of the building onto the adhesive side of iron-on interfacing (fusible fabric). • Cut the shapes out. • Iron these shapes onto the wrong side of the fabric to be appliquéd. • Cut the shapes out and position on the backing fabric, pin and tack in place. • Set up the machine. Attach open toe applique foot if preferred. Use same colour thread in top and on the spool. Choose stitch type, length and width. • Machine stitch/sew using a machine zig-zag/satin zig-zag/blanket stitch/heirloom stitch. Decorative stitches such as a scalloped satin stitch and a blind hem stitch could also be used. • Reverse/secure threads at the start and finish of the stitching. • Remove pins/tacking/trim loose ends. • Press. • **Fusible appliqué method 2 (bonda web):** • Trace the design of the building onto the adhesive side of iron-on fusible (bonda web). • Cut the shapes out. • Peel off the fusible web backing paper and iron onto the wrong side of the appliqué fabric. • Cut the shapes out and position on the backing fabric. Adhere applique to background by removing backing from the bonda web. Place applique right side up, shiny fusible side down on the background		No response or no response worthy of credit.

			fabric. Press, making sure to consider the heat the two fabrics can handle. • Set up the machine. Attach open toe applique foot if preferred. Use same colour thread in top and on the spool. Choose stitch type, length and width. • Machine stitch/sew using a machine zig-zag/satin zig-zag/blanket stitch/heirloom stitch. Decorative stitches such as a scalloped satin stitch and a blind hem stitch could also be used. • Reverse/secure threads at the start and finish of the stitching. • Remove pins/tacking/trim loose ends. • Press. • Any other suitable response.		

			 ① draw template and cut it out using fabric shears ② cut out the fabric using the template using fabric shears ③ cut out the bondaweb using fabric shears ④ using an iron, heat the bumpy side of the bondaweb with the glue down onto the fabric iron ironing board ⑤ take off the protective paper on the other side and glue the fabric onto the background using an iron  ⑤ iron ironing board ⑥ using a sewing machine sew around the edges sewing machine		

	(b)		Possible responses may include: • **Factories Act (1961)** (1) – Looks at general provisions within a workplace and what actions must be taken (1). • **Health and Safety at Work Act (1974)** (1) – Provides an operating framework to ensure employees' safety and welfare at work (1). • **Management of Health and Safety at Work Regulations (1999)** (1) – Requires employers to put in place a range of health and safety measures (1) Requires employers to put in place risk assessments (1) Requires employers to appoint competent people to arrange/provide appropriate information and training (1). • **COSHH (Control of Substances Hazardous to Health) Regulations (2002)** (1) **–** Requires employers to control substances that are hazardous to health (1). • Any other suitable response.	**2**	One mark for giving an example of current legislation that protects workers within a workshop environment. One mark for justifying why this legislation is needed. Specific reference to the context in the question is needed for marks to be awarded.

	(c)		Possible advantages and disadvantages may include: **Advantages to the consumer:** • Furnishing products can be adapted to the specific requirements of the consumer (1) - Consumers have the option of choosing the size, dimension and design of the appliquéd chair to fit personal circumstances (1) • Furnishing products can be adapted to the specific requirements of the consumer (1) - The materials used in the construction/type of fabric, colours and the type of stitching can be personalised (1). Consumer can incorporate their tastes to give exactly what they want (1). • Exclusivity of the product (1) – The look and feel of bespoke furnishing products reflect the individual style of the consumer (1) The look and feel of bespoke furnishing products gives a personal/unique touch (1). • Value for the money (1) – There is a greater focus on quality in a one-off piece (1) Manufacturers direct greater effort into the making of bespoke furniture with specialist workers/expertise (1). • Consumer gets a high spec, high quality product (1) Furnishing products are made to a very high standard (1) Manufacturers direct greater effort into the making of bespoke furniture with specialist workers/expertise (1). • Consumer gets a one-off, unique item made specifically to their specifications (1) –	**4**	Up to two marks for explaining an advantage to the consumer of purchasing one-off bespoke furnishing products such as the appliquéd chair. Up to two marks for explaining a disadvantage to the consumer of purchasing one-off bespoke furnishing products such as the appliquéd chair. Specific reference to the context in the question is needed for marks to be awarded. Mix and match approach to be taken with bullet points.

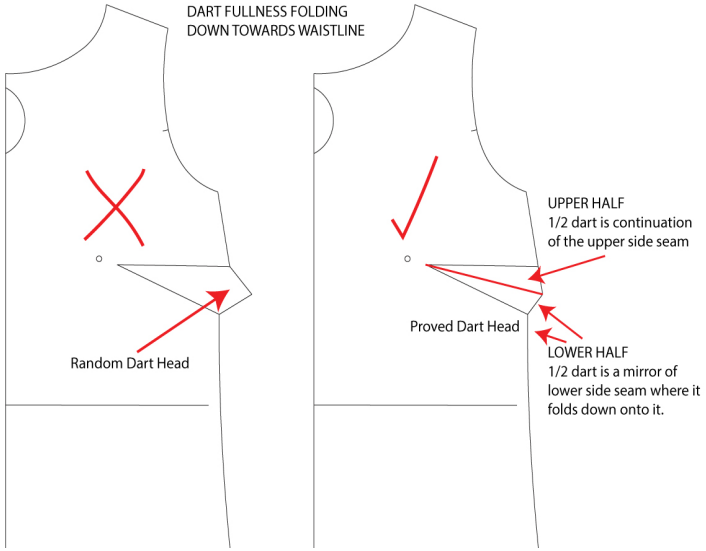
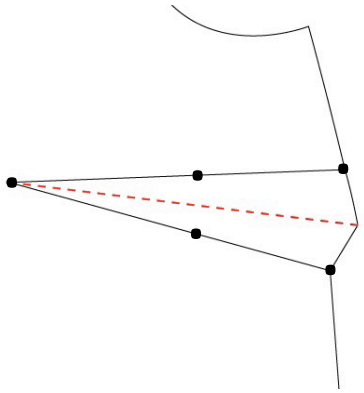
			Product can be guaranteed not be reproduced for anyone else (1). • Any other suitable response. **Disadvantages to the consumer:** • Not easy to order further bespoke products to match existing furniture (1) – Given the considerable financial investment involved in custom made furniture, it is not easy for the consumer to change them as often as they like (1). Unlike pre-made furniture which can easily be discarded to change the look of a house, if custom made furniture is owned, you could be stuck with the same look for a long time (1). • Custom made furniture can sometimes end up being quite costly (1) – In the search for exclusive and unique materials, consumers may end up incurring high costs for quality (1). • The process of manufacture of custom-made furniture is extremely time consuming (1) – The consumer may have to wait for a long period of time to receive and use the product (1). • Because it is bespoke it is unlikely to be returnable (1) – The customer would need to ensure they are fully happy with the design and specification before giving the manufacture the go ahead to start production (1). • Any other suitable response.		

	(d)		**Indicative content:** • **Television** – Benefits: Very high, mass market coverage; low cost per exposure; can generate powerful, emotive response; can use images, sounds and special effects. Drawbacks: This method only offers quick, fleeting exposure; target markets selected by scheduling. For example, between 4pm and 6pm for children. Key viewing times are also very expensive. • **Radio** – Benefits: very good local impact; high geographic selectivity; national radio effective for consumers on the move, for example, in a car. Relatively low cost for local radio, higher rates for national. Drawbacks: This method is audio only with fleeting exposure; fairly low attention, background 'noise'. • **Newspapers and magazines** – Benefits: Very good local markets, national or geographic selected coverage; broad acceptability; high believability; prestige magazines often high-quality images. Drawbacks: This method has a very short life; generally poor image quality in newspapers; with no guarantees of positioning the advert. High cost in nationals and prestigious magazines; right-handed page often more expensive than left-hand page (readability). • **Direct mail** (post) – Benefits: Very high audience selection; can be personalised with mail-merge systems.	**6** If candidate does not provide an analytical/evaluative response then only L1 can be awarded.	**Level 3 [5-6 marks]** The candidate has a clear understanding of the benefits and drawbacks to the retailer of using different media channels to advertise the chair. They produce a thorough discussion in relation to the question by explaining benefits and drawbacks to the retailer. The explanation is clear and a number of points are used to exemplify the points made. **Level 2 [3-4 marks]** The candidate has a reasonable understanding of the benefits and/or drawbacks to the retailer of using different media channels to advertise the chair. They produce a sound discussion in relation to the question by explaining benefits and/or drawbacks to the retailer. The explanation is sufficient although a number of opportunities to exemplify the points made are missed. **Level 1 [1-2 marks]** The candidate has a basic knowledge of media channels. Any reference to benefits/drawbacks to the retailer of using different media channels is limited. The response contains no analysis or evaluation, with few or no relevant points to exemplify the points being made. **0 marks** No response or no response worthy of credit.

			Drawbacks: This method is often discarded as junk mail and can have poor quality images; relatively high cost per exposure. • **Billboards** – Benefits: Flexible, high repeat exposure; local targeting; positioned in high traffic areas to catch mobile consumers; some are electronic with several adverts repeating. Drawbacks: This method has little audience selectivity; relies on image only and easily vandalised. Key sites can be very expensive, for example, outside airports. • **Online** (including email) – Benefits: Used by all industry sectors. High selectivity; instant; can be powerful with moving images and sound; can be interactive with direct access to supplier. Pop up advertising on websites can focus on specific buying trends and advertising with smartphone 'Apps" is increasingly popular. Generally low cost with purchases made directly from the advert. Drawbacks: There can be anxiety over invasion of personal space, unsolicited email; can be linked to spam and spyware. 'Ad blocking' software can sometimes be used to block unwanted adverts. • **Social media** – Benefits: Caters to a very large demographic regardless of age, gender etc. Through content sharing, it can reach an even wider population. This method encourages and generates interaction and brand loyalty. Low-cost method of advertising.		

			Drawbacks: This method can be time consuming. Can attract people not interested in the product, sometimes resulting in false or negative reviews. • Any other suitable response.		

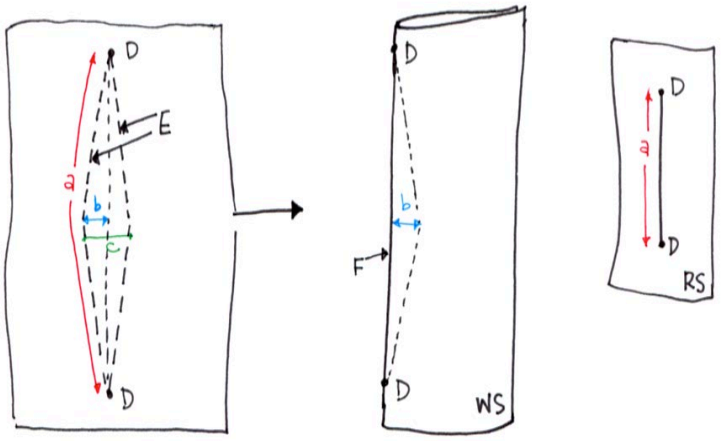
Question			Answer	Mark	Guidance
4	(a)		Possible reasons may include: • The darts are used to take in ease/ extra fabric (1) • The darts provide shape to the dress (1). • The darts tailor the dress to the wearer's shape to give a better fit (1). • Used to give the dress an innovative shape – trending style (1). • Darts control the shape of the fabric (1) • Darts allow the fabric to conform to the body (1) • The darts add interest and definition to the dress (1) • The darts enhance the appearance of the dress (1) • The use of darts creates an unfussy, slimline style (1). • Any other suitable response.	**2**	In each case: One mark for stating a reason why darts have been used to reduce fullness in the shift dress. Specific reference to the context in the question is needed for marks to be awarded. Do not accept to reduce fullness.

	(b)(i)		 • Position drawn on QP template should resemble diagram top right in position – detailed below 	3	One mark for correct positioning of dots. One mark for correct positioning of stitching in lines. One mark for correct positioning of fold line. Specific reference to the context in the question is needed for marks to be awarded.

			• A single-point dart is marked on the pattern as a triangle as seen above with two angled sides, sometimes called "legs". • Stitching line evident as a broken set of dots/slashes, fullness is formed at the inside point. • Dots are evident at the key points where dart needs to be folded ready for tacking. • Any other suitable response.		
	(ii)		Possible methods may include: • Thread marker (1). • Drill marker (1). • Hot notcher (1). • Dyes (1). • Tracing wheel (1). • Any other suitable response.	**1**	One mark for identifying a method used in the textile industry to transfer pattern markings from the paper pattern piece to the fabric. Specific reference to the context in the question is needed for marks to be awarded.

	(c)		**Indicative content:** **The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end to end process.** *A double pointed dart tapers in a straight line from the middle to both the ends and is clipped at the widest part.* • A double pointed dart has two dart vanishing points and two transitional points that are firstly transferred from the shift dress pattern onto the fabric, this can be done by using <u>tailor's tacks</u> as follows: • *Thread sewing needle so that there are two strands of a contrasting thread on the needle. Do not add a knot at the end of the thread.* • *Make a loose running stitch of 1-to-1.5-inch length through all the layers – the pattern paper and the fabric layers at each dot.* • *Leave a lot of tail at the start and at the ending and make really loose stitches so that they project out as loops. The stitches should appear like small loops on the surface.* • *When you have finished the stitches, cut through the top of the loops of the stitches.* • *Carefully remove the pattern paper. The cut loops will give direction as to where you should make the fold for the dart.* • *Carefully open-up the top layers of fabric and as you open carefully cut the stitched in-between.* • Ensure that all the transition areas (dots) of the darts are transferred. They are easy to recognise by the fact that	**6** All processes demonstrated must relate to the dress. If candidate does not provide an analytical/evaluative response then only L1 can be awarded.	**Level 3 [5-6 marks]** The candidate demonstrates a good level of detail of the process needed to insert a double pointed dart into the front of the shift dress using technical terms and considering any relevant equipment, machinery and materials. Sketches, if used will be clear and supported with relevant notes. The process includes all relevant stages. **Level 2 [3-4 marks]** The candidate will demonstrate a sound level of detail of the process needed to insert a double pointed dart into the front of the shift dress using some technical terms and there will be some consideration of any equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The process includes some relevant stages. **Level 1 [1-2 marks]** The candidate will demonstrate a limited level of detail of the process needed to insert a double pointed dart into the front of the shift dress with a limited use of technical terms

			they represent the outer most points of the double pointed dart on each side. • Once transferred, remove the pattern pieces and cut the threads to leave the double pointed dart outline. • Add a straight line from the top dart point to bottom dart point using tailor's chalk, splitting the double pointed dart in half. This will serve as the dart fold line and will help when finally folding and sewing the dart. • Fold along the dart fold line by nipping the dart right sides together/facing each other. For added stability, iron this fold line to keep the dart legs matching and overlapping right on top of each other naturally. • Place a few pins along the dart to keep the dart properly aligned for sewing. Make sure the dart legs are matched properly by inserting a pin through the markings on each side, checking that they are aligned. • Tack along the outer shape of the dart to hold in place. • Start at one dart point and machine stitch down towards the second dart point at the middle. Leave the needle in the fabric and pivot to complete the stitching towards the bottom point. • Machine stitch off the fabric at the bottom. Do not back stitch as this may damage or crease the fabric at the vanishing point. • Knot the loose threads to lock the machine stitch in place at each dart vanishing point.		and there will be a basic consideration of any equipment, machinery and materials required. Sketches, if used, will be unclear with only basic notes to accompany them. Few relevant stages are included. **0 marks** No response or no response worthy of credit.

			• Once completed, iron the double pointed dart seam on the right side of the garment with the excess pointing towards the centre. Sometimes snipped at the widest point.  • Any other suitable response.		

	(d)		Possible methods may include: • **Gathers** around the neckline (1) – Extra gathers add extra detail and interest to the dress for a younger/teenage audience (1). • Collar modified to include **pin tucks/wavy tucks** (1) – Pin tucks stitched into the collar to add interest and texture to the dress (1). • **Elastication** around the collar neckline (1) – To give a more snug fit around the neckline (1) Allow neckline to be worn off the shoulder securely (1). • **Elastication** around the waist section (1) – To give a snugger fit (1) Make the dress style more suitable for a younger child to wear (1). • Remove darts and **insert a smocked** section (1) – To add detail to enhance appearance of dress (1) target a younger user group (1) • **Boning** around the waist section (1) – To give it structure (1) To allow the dress to fit closely to the wearers body (1). • Any other suitable response.	**4**	In each case: One mark for stating a modification that could be made to the shift dress that uses a different method of reducing fullness to achieve this wider appeal. One mark for providing an appropriate justification of method. Mix and match approach to be taken with bullet points. Do not accept darts.
	(e)		Possible advantages may include: • Advantage: The whole garment can be pressed at once by placing over the steam dolly form (1) – Steam dolly is inflated with air and steam to remove all the creases at once (1) Time can be saved by pressing the whole garment (1)	**2**	Up to two marks for explaining an advantage of using a steam dolly in the manufacturing process. Specific reference to the context in the question is needed for marks to be awarded.

			• Advantage: Steam dolly inflates to exactly the same size as the garment attached (1) – This improves finishing results due to efficient pre-conditioning of fibres within the garment (1) Water spraying technology used is directed specifically at all fibres within the garment (1). • Advantage: Steam dolly has more benefits over a standard iron (1) – It is gentler on clothes (1) Easy and simple to work with (1) Can press difficult areas of a garment more effectively (1) • Advantage: The steam dolly helps to keep the product wrinkle free and fresher for a longer period (1) – The use of directed steam/water spraying technology removes creases more effectively (1). • Advantage: Reduces finishing time (1) – Using a steam dolly only requires the garment to be placed onto the 'dolly' and start steaming (1). • Any other suitable response.		Mix and match approach to be taken with bullet points.
	(f)		Possible ways may include: **Machinery** that skilled labourers use to operate manually can be computerised and programmed (1) – Explanation points: Enable the production of textile materials that can adapt to changing styles and fabrics. (1) Examples: **Ciment Pleating** (1) – Company making pleated fabrics since 1920s. Fabrics are pleated using a pattern or mould. Patterns are made from two pieces of card that are folded identically so	**6**	In each case: Up to two marks for explaining how developments in manufacturing processes and/or fibres and fabrics have made it easier to include reduction in fullness techniques in textile products.

			that they can fit together. (1) Most moulds have a wrapper on the outside to protect the pattern during the heating process (1) – This can still be labour intensive today unless latest software technologies are available (1) **Vintage pleating**. Iconic designs – 1950 Marilyn Munroe's iconic white, halter neck dress with pleated skirt (Seven Year Itch Movie) and the way glamour clothes/fashion has impacted on high street styles and trends of present day. (1) Introduction of Fast fashion – demand to keep up to date has led to more developed technologies. (1) **Pre-pleated fabrics** using specialised pleating machinery (1) – Explanation points: Traditional hand pleated fabrics, pleated either randomly or in a regular pattern has now fused into pre-pleated fabrics that are made using chemicals to pleat the fabric (1) or using heat and pressure with specialised pleating machinery that folds, creases and sets the pleats at the same time. (1) The fabric is pleated using pressurised steam and heat. (1) Examples: **Fortuny** type pleat (1) - crisp pleats set in silk fabrics by designer Mariano Fortuny in the early 20th century, using a secret pleat-setting process. (1). **Ryan Yasin** (1) – range of children's outer wear clothing that grow with the child. His range of clothing made from an engineered pleated lightweight fabric can expand up to seven sizes. (1) **Automated sewing technology** (1) – Explanation point: CNC sewing technology has the capability to produce 3D stitching and flexible material handling to create physical dimensions within the material. (1)		Specific reference to the context in the question (reduction of fullness) is needed for marks to be awarded.

			Use of Artificial Intelligence (AI) for tech design and sourcing. (1) **Computer-aided design (CAD) and digital data.** (1) - Explanation points: Design of clothes and textile products which in the past required human participation and a lot of man hours, is becoming obsolete. (1) Artificial Intelligence be used to generate the technical design specifications based on the data supplied. (1) **Computer 3D scanning, modelling and printing.** (1) - Explanation points: Technological advancements have led to digitally fabricated garments (1) For example, the work of designer, Iris van Herpen (1) and Julia Koerner (1) have led the way. Advancements in 3D printing is enabling more practical clothing to be manufactured (1) Computer modelling software can now be used to create 3D fashion that can be adjusted for custom fit. (1) Computer modelling software takes the process off the haute-couture catwalk and onto the high-street. (1) **Parametric Modelling software** developments (1) – Explanation point: This software allows more organic designs to be achieved which are showcased in Herpen's collections. (1) (see extra detail in answer above). **Developments within fibres and fabrics** (1) - Explanation points: Additive manufacturing and the developments of flexible materials has developed ways fabrics can be manipulated (1) Examples: Polyjet Flex material (1) manufactured with different densities and stiffness's within the same material, which allows surfaces to be controlled to create shapes – ruffles, curves, tucks. (1) • Any other suitable response.		

Question			Answer	Mark	Guidance
5	(a)		Possible techniques may include: • **Macramé** (1) – looping and knotting of yarns to trap the beads (1). • **Braiding** (1) – a rope-like structure which is made by interweaving three or more strands, strips or lengths (1) a rope like structure made using a diagonally crisscrossing, overlapping pattern to secure the beads (1). • **Plaiting** (1) – interweaving/interlacing two or more fibres/threads together to form a plait or fold to secure the beads (1). • **Crochet** (1) – working with one strand of thread using a single chain stitch to secure the beads for jewellery (1). • **Lace making** (1) – braiding and twisting numerous lengths of threads using a bobbin (1). • **Knitted tubes**; (1) Beads can be threaded onto the yarn whilst knitting (1) Beads placed into the resulting tubes of knitting and secured (1). • Any other suitable response.	**2**	Up to two marks for describing a technique that would be suitable for the context given. Specific reference to the context in the question is needed for marks to be awarded. Accept just knotting if macramé not mentioned. Accept weaving if braiding not mentioned.

5	**(b)**		Possible factors may include: • Factor: How each material interacts with each other (1) – Designer needs to consider appearance/aesthetic properties of the necklace (1) (1) Consider the colour, lustre and surface textures (grain pattern for wood beads) (1) Consider how each component compliments each other to enhance appearance (1) • Factor: The short-term physical properties of each of the materials used in the necklace (1) – Physical properties such as strength in bending to shape the components for immediate use (1). • Factor: The long-term physical properties of each material/component of the necklace (1) – Stability of each of the components for longevity (1) For example, hardwood beads - how much the timber expands and contracts, warps or twists as moisture levels in the atmosphere change (1) Suitability of components for outdoor conditions whilst being worn (1) Wear and tear/resistance to chemicals/cleaning products also considered (1). • Factor: The working properties of each of the materials/components used (1) – Ease of manipulating/processing (1) Ability to be glued/fused/incorporated into the necklace structure (1) Ease of finishing and after care considered (1). • Commercial factors surrounding the production of the necklace (1) – The availability of materials and components (1) Availability of sizes, consistency/quality of materials (1) Factoring in of wastage during manufacturing process (1) Growing consumer demand for combinations of	**4**	In each case: Up to two marks for describing a factor a designer would need to consider when choosing a range of multiple materials to make the necklace. Specific reference to the context in the question is needed for marks to be awarded.

			materials to be used in jewellery (1) Cut costs by using different materials combined together to make more affordable jewellery products (1). • Factor: Combination of different techniques (1) –Creates exciting new designs and opportunities for the user (1) Gives the designer/manufacturer more variety and capacity to corner market demand (1) Allows the designer/manufacturer to create a niche product (1) • Sustainability (1) How have the materials been produced. Have they come from recycled materials (1) • Any other suitable response.		

	(c)*		**Indicative content:** The demand for sustainable jewellery is growing, along with European consumer awareness of social, environmental and economic issues in the sector. Material efficiency - using less of a material to make a product, is gaining attention as a means for accomplishing important environmental goals. The ultimate goal of material efficiency is not to use less physical material, but to reduce the impacts associated with its use. There are more possibilities with use of multiple material products to reduce and re-use raw materials. This reduces pollution caused by reducing the need to harvest a lot of new raw materials, also reduces greenhouse gas emissions that contribute to global climate change. Using a range of different materials from different and/or local locations can also help to reduce or eliminate downstream assembly and manufacturing operations and thus reduces energy usage, saving costs and reducing carbon footprint. Using multiple materials in a product enables recycling/biodegradability of at least some of the materials when broken down (end of use/LCA), rather than a complete product made from a single material, which may not be bio-degradable or able to be recycled/re-used. This reduces the amount of waste that will need to be recycled or sent to landfills and incinerators. This also helps sustain the environment for future generations. The recovery of secondary materials is a major factor to improve the environmental performance of industrial production, helping the original form of the material to be largely preserved.	**8** For MB3 to be awarded a number of environmental benefits will be considered and discussed in relation to the use of multiple materials in products. If candidate does not provide an analytical/evaluative response then only L1 can be awarded	**Level 3 [6-8 marks]** The candidate has a clear understanding of the environmental benefits of using multiple materials in products. They produce a thorough discussion in relation to the question by explaining the importance of these benefits to the environment. The discussion is clear and a number of points are exemplified in relation to environmental benefits with relevant examples evident and in context. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples.* **Level 2 [3-5 marks]** The candidate has a reasonable understanding of the environmental benefits of using multiple materials in products. They produce a sound discussion in relation to the question by explaining the importance of these benefits to the environment. *There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.* **Level 1 [1-2 marks]** The candidate has a basic knowledge of the benefits of using multiple materials in products. Any reference to the

			Demand reduction is the primary opportunity to reduce material production - Extending the life of a product (reducing fast, throw away fashion/accessories) is also strategy manufacturers are working on to reduce environmental impact. Strategies for improving material efficiency hinge on this idea of reducing demand for primary (virgin) material, either through fulfilling demand using secondary material through reuse and remanufacturing, or by designing products to use less material overall. Therefore, using multiple materials to make the necklace – recycling woods, component parts etc reduces demand for the primary material source which in turn, protects the environment. Life extension (through service, repair, and maintenance) is a key option for services/manufacturers that are material intensive, in order to become more sustainable and environmentally responsible. Light-weighting is a strategy which reduces the amount of material required by re-designing the product or through material substitution. It is often applied in transportation equipment, as well as in packaging. Multi Material Manufacturing (MMM) – An advantage of MMM is its ability to produce fully assembled components 'in-mould'. This means that entire assemblies consisting of multiple pieces can be produced by a single set of moulds, thereby eliminating the need for secondary assembly and the use of components, fasteners etc. This translates to a reduced part count and negligible assembly costs, reduced carbon footprint (transport). Additionally, seals can be moulded directly onto parts that need to form tight seals, such as lids and connectors.		environment is limited. The response contains no analysis or evaluation. *The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.* **0 marks** No answer or answer not worthy of credit.

			Examples of in-mould assembly - children's toys which are all produced using MMM. 3-material dolls come out of the moulds completely assembled and have rotating limbs and heads as well as multiple coloured sections. Any other suitable response.		

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