



Oxford Cambridge and RSA

GCE

Design and Technology

H405/02: Problem solving in fashion and textiles

A Level

Mark Scheme for June 2023

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

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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.

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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 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).

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. *Assistant 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:
- To determine the level** – start at the highest level and work down until you reach the level that matches the answer
 - 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
	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
	Confused (replaces the question mark)
	Benefit of doubt
	AO1 – Knowledge and understanding
	AO2 – Apply knowledge and understanding
	AO3 - Analyse
	AO4 - Evaluation
	Omission
	Not answered question
	Noted but no credit given
	Too vague
	Own figure rule
	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.

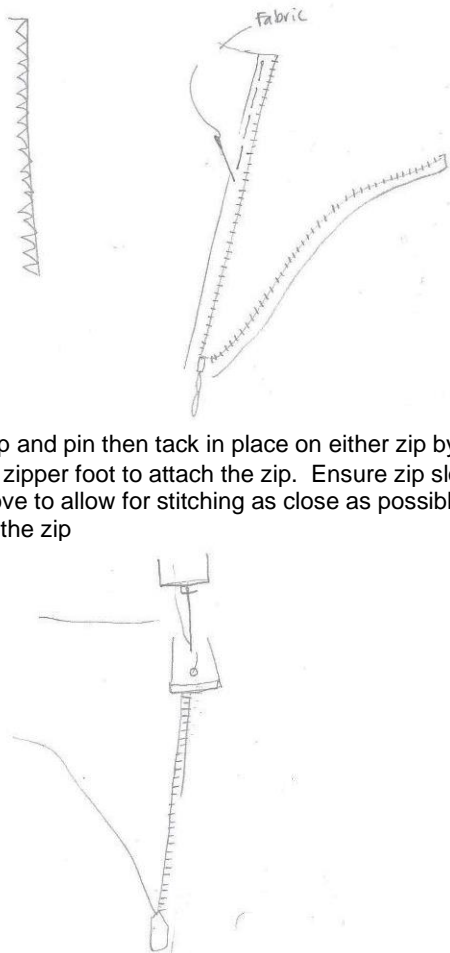
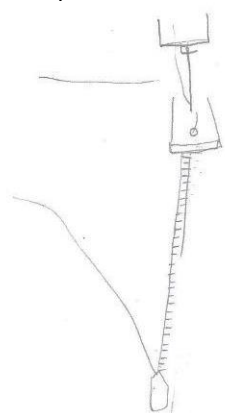
Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

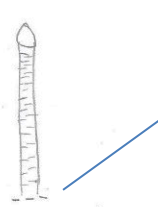


Question		Answer	Mark	Guidance	
				Content	Levels of response
1		<p>Indicative Content:</p> <p>Small Batch:</p> <ul style="list-style-type: none"> • Quick to make as limited number of seams • Limited skill needed • No fastenings • Fabric easy to cut and widely available • Standard sizes used across all colours so same pattern pieces used • Basic equipment needed for manufacture, no fancy or decorative stitches or technical processes • Method of construction the same across all sizes so can be repeated easily and quickly • Small batches can respond to new trends like colours for seasons • Trim or webbing for neck could be bought in as a standard component • Care label could be manufactured elsewhere and stitched in place by Sam – or printed onto the t-shirts to reduce additional processes. <p>High Volume:</p> <ul style="list-style-type: none"> • Quick to manufacture • Can use specialist equipment like overlocker to construct which may speed up process or make it more efficient • Fabric easy to cut so can be cut on large quantities and then passed along production line • Familiar product – manufacturer may already make something similar so do not need to retrain staff or change/upgrade machinery • Production lines would be set up to speed up process • May offer shipping option direct to customer • Standard sizes – unisex so limited range to manufacture and existing pattern pieces could be used • Fabric is not bespoke and colours can be agreed and sourced locally to manufacturer • Care label can be made in house on separate line or manufactured locally to save additional shipping costs or waiting for this to arrive 	8	<p>All responses should be in relation to the product and specification and information on website screen shot.</p> <p>Candidates may extract information from the Resource Booklet. Any such lifted information can be used in support of the explanation but no marks should be awarded simply for duplicating text.</p> <p>There is no analysis or evaluation in Level 1.</p>	<p>Level 4 (7-8 marks) A comprehensive critical examination of factors that make the Oversized T-shirt suitable for the manufacturing methods identified. Both manufacturing methods are referenced in narrative. Information in the RB is used effectively to fully exemplify the points being made. Well-constructed narrative in relation to question with clear and supported evaluative comments.</p> <p>Level 3 [5-6 marks] A good critical examination of factors that make the Oversized T-shirt suitable for the manufacturing methods identified. Both manufacturing methods are referenced in narrative. Information in the RB is used for the most part effectively to exemplify points being made although one or two opportunities are missed. Well-constructed narrative in relation to question although one or two opportunities missed to develop response. Evaluative comments are clear but not always supported.</p> <p>Level 2 [3-4 marks] A sufficient critical examination of factors that make the Oversized T-shirt suitable for the manufacturing methods identified. At least one manufacturing method is referenced in narrative. Information in the RB is used to exemplify some points being made although much more could have been done to exploit the stimulus material available. Reasonable narrative in relation to the question although</p>

						<p>response at times lacks depth and cohesion. Evaluative comments lack clarity and are unsupported.</p> <p>Level 1 [1-2 marks] A limited examination of factors that make the Oversized T-shirt suitable for the manufacturing methods identified. At least one manufacturing method is referenced in narrative. Use of information from the RB is used in a simplistic way and adds limited value to the points being made. Limited narrative in relation to question. Response is basic and unstructured with no evaluative comments.</p> <p>0 marks = No response or no response worthy of credit.</p>
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				Content	Levels of response
2*		<p>Indicative Content</p> <p><u>Versatility:</u></p> <ul style="list-style-type: none"> • Available in a wide range of sizes • Both are modest style, knee length • Could be suited to varying heights and builds. • Dress A would be more suited to different heights as there is no waist or restrictive aspects to the design • Dress A allows a belt to be added if the user wants to add shape to make the dress more formal • Short sleeve shift is likely to be more comfortable and better to move in as it is less fitted • Both are easy to wear, and no fastenings mean they are easy to put on • Sleeveless dress could be too cold or not formal enough for some. But fabric is not well suited to hot weather as it is synthetic. <p><u>Aftercare:</u></p> <ul style="list-style-type: none"> • Both are washable • Dress B is less easy to care for, as it is synthetic it cannot be tumble dried • Dress B may need to be ironed before wear to keep shape/style • Dress A is washable at any temperature because it is cotton • Dress A is easier to care for • Dress A may last longer than Dress B as it is cotton. The synthetic dress may bobble. <p><u>Fabric characteristics:</u></p> <ul style="list-style-type: none"> • Both are stretchy • Dress B is likely to be more stretchy as it has a higher elastane content • Dress A is natural fibre so will be breathable, more comfortable to wear and is more sustainable – will mostly biodegrade or could be recycled. However, the cotton will use a lot of water during processing unless from a sustainable source 	12		<p>Level 4 [10-12 marks] A comprehensive discussion of the suitability of both dresses in relation to meeting the customer feedback provided. Effective comparison of both designs in relation to all three areas of focus stated. Information in RB is used effectively to fully exemplify the points being made. Well-constructed response in relation to question with a clear and developed narrative.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 3 [7-9 marks] A good discussion of the suitability of both dresses in relation to meeting the customer feedback provided. Effective comparison of both designs in relation to at least two areas of focus stated. Information in RB is used for the most part effectively to exemplify points being made although one or two opportunities are missed. Well-constructed response in relation to question although one or two opportunities not taken to develop narrative.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in the most part relevant and supported by some evidence.</i></p> <p>Level 2 [4-6 marks] A sufficient discussion of the suitability of both dresses in relation to meeting the customer feedback</p>

			<ul style="list-style-type: none"> Dress B could be recycled but has a negative impact on environment due to manufacture of fibres using finite sources 			<p>provided. Effective comparison of both designs in relation to at least one area of focus stated. Information in RB is used to exemplify some points being made although much more could have been done to exploit the stimulus material available. Reasonable response in relation to the question although narrative at times lacks depth and cohesion.</p> <p><i>The information has some relevance and is presented with limited structure. The information is supported by limited evidence.</i></p> <p>Level 1 [1-3 marks] A limited discussion of the suitability of both dresses in relation to meeting the customer feedback provided. Only one area of focus covered. Use of information from the RB is used in a simplistic way and adds limited value to the points being made. Limited response in relation to question. Narrative is basic and unstructured.</p> <p><i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.</i></p> <p>0 marks = No response or no response worthy of credit.</p>
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				Content	Levels of response
3		<p>Indicative Content:</p> <p>Construction Techniques - zip</p> <ul style="list-style-type: none"> • Finish edges of back panel where zip will be attached, overlock or zip zag stitch the edge, or turn over and hem or iron • Gently iron the zip at a low temperature to help it lie flat  <ul style="list-style-type: none"> • Open zip and pin then tack in place on either zip by hand • Use the zipper foot to attach the zip. Ensure zip slots into the groove to allow for stitching as close as possible to the teeth of the zip  <ul style="list-style-type: none"> • Sew along both sides of the zip 	16	<p>The question assesses applied knowledge and technical principles to the existing design.</p> <p>There may be variations to the process as indicated but to get into L3 candidates must show a clear understanding of the end to end process.</p> <p>Candidates can draw on practical experience to support responses.</p> <p>Candidates are expected to demonstrate understanding of the processes through annotated sketches and/or notes.</p>	<p>Level 4 [13-16 marks] A comprehensive demonstration and understanding of how the zip and shoulder pads could be incorporated within the fitted dress. Comprehensive understanding of the three elements specified in question. Information in RB is used effectively to fully exemplify the points being made. Sketches will be clear and supported with relevant notes. The process will be end to end and clear in the way it is explained.</p> <p>Level 3 [9-12 marks] A good demonstration and understanding of how the zip and shoulder pads could be incorporated within the fitted dress. Good understanding of the three elements specified in question. Information in RB is used for the most part effectively to exemplify points being made although one or two opportunities are missed. Sketches will for the most part be clear and supported with relevant notes. The process will be end to end and for the most part be clear in the way it is explained.</p> <p>Level 2 [5-8 marks] A sufficient demonstration and understanding of how the zip and/or shoulder pads could be incorporated within the fitted dress. Sufficient understanding of two elements as specified in question. Information in RB is used to exemplify some points being made although much more could have been done to exploit the stimulus material available. Sketches will be adequate and supported with notes. The process may not</p>

		<ul style="list-style-type: none"> Swap to normal sewing machine foot and sew along the bottom of the zip with the zip closed  <div data-bbox="772 223 1131 359" style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>Close zip fully. Sew across where zip should end.</p> </div> <p><u>Tools and equipment - zip</u></p> <ul style="list-style-type: none"> Sewing machine with zip foot Needle and thread for hand tacking Pins <p><u>QA and QC – zip</u></p> <ul style="list-style-type: none"> Is the zip securely attached Does it lie flat Is it evenly attached and central to the back of the dress Does it function – open and close the full length this sort of fabric so it may not fit with the company image <p><u>Construction Techniques – shoulder pad</u></p> <ul style="list-style-type: none"> Attach shoulder to dress  <ul style="list-style-type: none"> Turn dress inside out with sleeve attached Fold shoulder pad in half and mark halfway line 			<p>necessarily be end to end with some knowledge gaps evident.</p> <p>Level 1 [1-4 marks] A limited understanding of how the zip and/or shoulder pads could be incorporated within the fitted dress. Limited knowledge and next to no understanding of the elements specified in question. Use of information from the RB is used in a simplistic way and adds limited value to the points being made. Sketches if used will be unclear with only basic notes to accompany them. The end to end process may not exist and if anything is basic in nature.</p> <p>0 marks = No response or no response worthy of credit.</p>
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- Match up half way line with shoulder seam, pin in place with the shoulder pad positioned slightly into the seam allowance of sleeve head



- Sew in place by hand or with machine. Or sew using hand stitches on shoulder so that pad is removable

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Tools and equipment – shoulder pad

- Sewing machine
- Scissors
- Unpicker/stitch ripper

QA and QC – shoulder pad

- Are the pads symmetrical – evenly placed on shoulder seam
- Are they the right way round so that thickest part is in top of shoulder/into sleeve
- Are they the right size – can be trimmed to size
- Securely attached
- Do the shoulder pads match – same shape, size, colour, thickness, foam


Zip

equipment needed:

- dress zonic
- zip
- pins
- sewing machine
- scissors

① firstly unzip the zip to make it easier to work with ~~zip~~ dress ✓

② take the right side of the zip & place it right side together, facing as the zip & right side of zip opening of the dress ✓

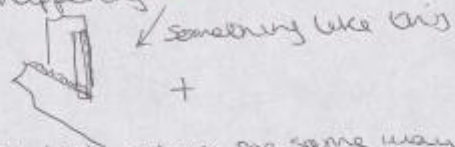


③ pin the zip to the fabric & use a ruler to ensure it is the right seams allowance away from the edge all the way down ✓

④ change the sewing machine foot to a zipper foot & set up the machine as normal with thread colour of choice ✓

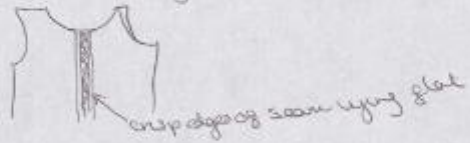
⑤ sew as closely as possible to the teeth of the zip with a straight stitch, ensure to backstitch at the start & finish ✓

- ⑥ take the remaining side of the zip and pin it right sides together to the other side of the opening in the same way as done with left side of the zip ✓
 → to make this easier, move the fabric of the dress around so no pulling is happening ✓



- ⑦ sew the left side in the same way as done for the right side.

- ⑧ once zip is finished, use an iron to press the fabric of the zip outwards and so that the dress of the fabric is lying flat against the zip ✓



- + also sew a few stitches across the bottom of the zip where it ends to ensure it doesn't come out at the bottom → this should be done on the wrong side of the fabric ✓



Shoulder pads

① when the dress is complete, turn it inside out ✓ & place the shoulder pads where the pattern would indicate onto the fabric. ✓

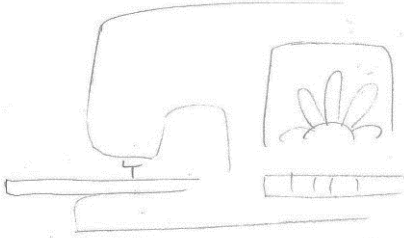
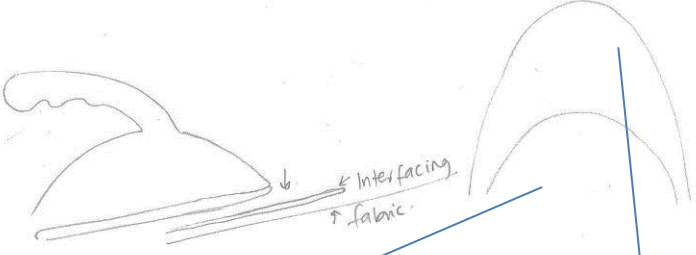


② pin it in place ✓

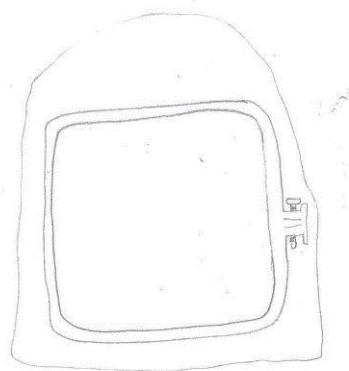
③ use a normal foot on the sewing machine with a complementary thread, sew around the edges of the shoulder pad to the fabric ✓

- make sure you are only sewing through one layer of fabric & one shoulder pad ✓
- use a ~~stitch~~ zig zag or straight stitch
- ensure to back stitch at the start & finish of the stitch

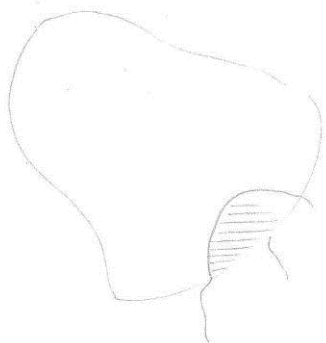


		Content	Levels of response
<p>4</p>	<p>Indicative Content:</p> <p><u>How to apply decorative embellishment – Using CAD or Free Machine Embroidery</u></p> <ul style="list-style-type: none"> • Create or download design for embroidery on Cad programme that is connected to sewing machine. Or transfer to embroidery machine using USB/memory stick or other method. • If using free machine embroidery – change foot to embroidery foot and ensure the dog teeth are down to allow the fabric to move freely.  <ul style="list-style-type: none"> • Add sample/scrap fabric to machine in embroidery hoop • Complete a test run to check size and position on pattern piece – may need to be sized up for larger sleeves on bigger dress size • Apply interfacing using iron at correct temperature with no steam. Allow to cool.  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">Interfacing Sleeve pattern piece</p> </div>	<p>12</p> <p>The question assesses applied knowledge and technical principles to the existing design.</p> <p>There may be variations to the process as indicated but to get into L3 candidates must show a clear understanding of the end to end process.</p> <p>Candidates can draw on practical experience to support responses.</p> <p>Candidates are expected to demonstrate understanding of the processes through annotated sketches and/or notes.</p>	<p>Level 4 [10-12 marks] A comprehensive demonstration and understanding of how to apply decorative embellishment to the dress. Comprehensive understanding of the three elements specified in question. Information in RB is used effectively to fully exemplify the points being made. Sketches will be clear and supported with relevant notes. The process will be end to end and clear in the way it is explained.</p> <p>Level 3 [7-9 marks marks] A good demonstration and understanding of how to apply decorative embellishment to the dress. Good understanding of the three elements specified in question. Information in RB is used for the most part effectively to exemplify points being made although one or two opportunities are missed. Sketches will for the most part be clear and supported with relevant notes. The process will be end to end and for the most part be clear in the way it is explained.</p> <p>Level 2 [4-6 marks] A sufficient demonstration and understanding of how to apply decorative embellishment to the dress. Sufficient understanding of two elements as specified in question. Information in RB is used to exemplify some points being made although much more could have been done to exploit the stimulus material</p>

- Secure fabric in hoop and place in machine



- Run simulation to check position is correct
- Add correct thread colour and bobbin
- Embroider first section and secure loose threads



Tidy and secure loose threads

- Swap to next colour and repeat process until design is complete
- Trim back edges of interfacing or check all secure so it is comfortable to wear
- Once finished handle sleeve as normal pattern piece and complete the rest of the construction of dress.

available. Sketches will be adequate and supported with notes. The process may not necessarily be end to end with some knowledge gaps evident.

Level 1 [1-3 marks]
 A **limited** understanding of how to apply decorative embellishment to the dress. Limited knowledge and next to no understanding of the elements specified in question. Use of information from the RB is used in a simplistic way and adds limited value to the points being made. Sketches if used will be unclear with only basic notes to accompany them. The end to end process may not exist and if anything is basic in nature.


0 marks = No response or no response worthy of credit.

		<p><u>The selection of components for machine embroidery and to reinforce fabric</u></p> <ul style="list-style-type: none"> • Select iron on interfacing to match the weight of fabric and detail on embroidery • Iron on interfacing to match size and shape of design – on wrong side of fabric • Select appropriate thread for embroidery and matching or co-ordinating bobbin • Ensure thread is suited to the fabric type and will not fade or run – sample test <p><u>Suitability of the fabric</u></p> <ul style="list-style-type: none"> • Polyester is strong so will withstand the additional weight of interfacing and embroidery • Will not pull or distort • The surface of the fabric will contrast well with embroidery • Garment may not need ironing after washing so embroidery could last longer • Health and safety issues for the manufacturer • Crepe weave is more flexible than other weave so it can accommodate embroidery • The drape of the dress and sleeve would remain the same after embroidery <p><u>Health and safety issues for the manufacturer</u></p> <ul style="list-style-type: none"> • Dust inhalation from machine embroidery • Vibrations from machine • Speed of needle moving, keep hands away. Caution when changing thread/bobbin. • Ensure process is finished before moving on to next step. • Automated process, keep loose clothing/body parts away from needle • Sharp needle – caution when changing threads 			
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Equipment needed

- embroidery hoop
- embroidery onсад
- embroidery foot
- sewing machine
- fabric
- interfacing
- pencil/tailors chalk
- iron

① Due to the fabric being 100% polyester crepe it might be delicate for machine embroidery so before anything, interfacing should be ironed onto the fabric to make it stronger




② Now that the fabric is new speed, attach an embroidery hoop onto the fabric by taking the bottom side of the hoop & place it under the fabric then take the other side and place it over the fabric & the other hoop. Tighten hoop as needed & pull the fabric taut.



③ replace the sewing machine foot with a free machine embroidery foot

④ draw/trace design using pencil or tailors chalk onto fabric.



⑤ place the hoop under the sewing machine
get so that the fabric is laying flat
against the machine and the hoop is securing
the fabric



⑥ ~~before~~ before sewing, put the ~~feet~~^{feet} of
the sewing machine down

⑦ ~~before~~ to ensure machine is set up
with correct colour embroidery thread

⑧ to sew, move the fabric using your
hands as there aren't teeth to do it
automatically & get back over where you
start to finish to make sure it doesn't
unravel → repeat steps 6-8 for all different areas

⑨ when finished, cut the thread &
take out fabric of embroidery
hoop and iron any creases out to
get a neat finish. (low temp)

Health & safety

- if a needle breaks, all workers should
stop what they're doing until all parts
of the needle are found otherwise they
may swallow ~~the~~ part of a needle
may be found by a customer embedded
in their garment which is a hazard
- keep hands away from iron to prevent
burns

		Maths		
5	(a)		2	<p>Award 2 marks as follows:</p> <p>One mark for correctly plotting co-ordinates of large rhombus.</p> <p>One mark for correctly plotting c-ordinates of small rhombus.</p> <p>The diagram can be presented in different ways depending on where the candidate takes the origin on the 1cm grid paper provided.</p>
	(b)	<p>Area of decagon = $s^2N/4\tan(180/N)$</p> <p>s = length of one side N = number of sides</p> <p>$s = 3\text{cm}$ $N = 10$ [1]</p> <p>$s^2N/4\tan(180/N) = 3^2 \times 10 / 4 \times \tan 18$ [1] $= 9 \times 10 / 4 \times 0.324919696$ $= 90 / 1.299678784$ $= 69.2478796361$ [1] $= 69.2479 \text{ mm}^2$ [1]</p>	4	<p>Award 4 marks as follows:</p> <p>One mark for correctly identifying: $s = 3\text{cm}$ $N = 10$</p> <p>One mark for entering values for s and N into formula.</p> <p>One mark for calculating out formula.</p> <p>One mark for reducing to 4 decimal places.</p> <p>Note: if the candidate calculates the formula incorrectly, but still correctly reduces their answer to 4 decimal places, award the mark for reducing to 4 decimal places.</p>

				Content	Level of Response
6*		<p>Indicative Content:</p> <p><u>Web or cloud based software:</u></p> <ul style="list-style-type: none"> • Design software can be cloud based so that stakeholders can view simultaneously. • The use of social media allows their brand to be seen by others and connect with new designers. Influences can promote the brand which can result in their following being increased. • Adaptations can be made live and up to date versions shared instantly • Digital cloud based CAD programmes so collaborative working can be facilitated • Cloud based means it is not needed to be posted, printed or stored physically • Instant • Up to date information • Shared with manufacturer and other members of development team • Check stock information and sizes and other information • Update shipping dates/times and expected completion dates. <p><u>Video calling or virtual meetings:</u></p> <ul style="list-style-type: none"> • Removes or reduces transport costs • Logistics of meetings can be easier to overcome across countries and time zones • Large groups can meet without having to travel this might previously have meant several meetings needed to be held with different stakeholders. • Others can be added to meeting if needed – conference calling • Calls can be recorded for reference or to share with other stakeholders to understand plans, designs, processes • Modelling or images, products of physical samples can take place and be recorded – sharing of live images and adaptations • Virtual meetings can speed up development process as changes can be discussed and actioned during meeting. <p><u>Digital Visualisations or prototyping:</u></p> <ul style="list-style-type: none"> • Mock up designs can be created to simulate ideas. These can be adapted during meeting to compare ideas and change them instantly. • Alternative fabrics and colourways can be tested • Simulations of fabrics can be seen to consider suitability and drape. • Can test fit and range of sizes 	16	<p>Candidates may extract information from the Resource Booklet. Any such lifted information can be used in support of the explanation but no marks should be awarded simply for duplicating text.</p> <p>The answer should be given must focus on how technology and online collaboration will enable the company to work with designers and brands from around the world to enhance their product range.</p> <p>There is no analysis or evaluation in Level 1.</p>	<p>Level 4 [13-16 marks] A comprehensive examination of how different method of online collaboration and technology can support the development of new products. Comprehensive understanding of the three elements specified in question. Information in RB is used effectively to fully exemplify the points being made. Well-constructed narrative in relation to question with clear and supported evaluative comments.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 3 [9-12 marks] A good examination of how different method of online collaboration and technology can support the development of new products. Good understanding of the three elements specified in question. Information in RB is used for the most part effectively to exemplify points being made although one or two opportunities are missed. Well-constructed narrative in relation to question although one or two opportunities missed to develop response. Evaluative comments are clear but not always supported.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in</i></p>

			<ul style="list-style-type: none"> • May be stock products already in software to speed up process • Save money or making prototypes • Reduce waste and improve sustainability • Enables international collaborative working as not limited by resources available in specific regions • Software can create pattern lays to match designs which will speed up manufacturing 			<p><i>the most part relevant and supported by some evidence.</i></p> <p>Level 2 [5-8 marks] A sufficient examination of how different method of online collaboration and technology can support the development of new products. Sufficient understanding of two elements as specified in question. Information in RB is used to exemplify some points being made although much more could have been done to exploit the stimulus material available. Reasonable narrative in relation to the question although response at times lacks depth and cohesion. Evaluative comments lack clarity and are unsupported.</p> <p><i>The information has some relevance and is presented with limited structure. The information is supported by limited evidence.</i></p> <p>Level 1 [1-4 marks] A limited examination of how different method of online collaboration and technology can support the development of new products. Limited knowledge and next to no understanding of the elements specified in question. Use of information from the RB is used in a simplistic way and adds limited value to the points being made. Limited narrative in relation to question. Response is basic and unstructured with no evaluative comments.</p>
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						<p><i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.</i></p> <p>0 marks = No response or no response worthy of credit.</p>
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