Cambridge Assessment International Education

Cambridge International AS & A Level

DESIGN AND TEXTILES **9631/01**

Paper 1 Fibres, Fabrics and Design **October/November 2020**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Section A

Question	Answer	Marks	Guidance
1(a)(i)	**Identify <u>one</u> protein fibre and state its origin.** Possible answers: • silk from silk worm/caterpillar, larvae of Bombyx mori; • wool from sheep hair; • cashmere from goats; • alpaca from alpaca hair; • mohair from goats; • angora from rabbits; • or other correctly named animal hair. **One** mark for a correctly named fibre. **One** mark for the fibre's origin.	**2**	
1(a)(ii)	**Identify <u>one</u> regenerated fibre and state its origin.** Possible answers: • viscose/modal – cellulose wood pulp and chemicals/sodium hydroxide (caustic soda); • acetate – cellulose cotton linters and chemicals/acetic acid; • triacetate – cellulose cotton linters and chemicals/dichloromethane; • lyocell – cellulose wood pulp and chemicals/organic amine oxide; • or other correctly named regenerated fibre and its origin. **One** mark for each correctly named fibre. **One** mark for correct origin. Only accept cellulose if the correct source of cellulose is given. **Accept** 'chemicals' or specific chemical name. **Do not accept** brand names, e.g. Tencel.	**2**	Not bamboo, pineapple, crab, etc.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>1(b)</td><td>
Compare the following characteristics of the <u>fibres</u> chosen in 1(a)(i) and (ii):
(i) flammability
(ii) fibre length
(iii) elastic recovery

Possible answers:
<table>
<tr><th>Characteristic</th><th>Protein fibres</th><th>Regenerated fibres</th></tr>
<tr><td>Flammability</td><td>Silk, Wool, Mohair, Cashmere, Alpaca and Angora do not ignite easily/have very good flame resistance/sputters/smoulders/not very flammable/crumbly black ash /smell of burning hair/feathers.</td><td>Viscose, Acetate, Triacetate, Lyocel (cellulosic fibres) are easy to ignite/rapid burning/flammable/ black ash/smells acrid.</td></tr>
<tr><td>Fibre length</td><td>Staple fibres are fixed length. Fibre length varies according to breed of animal.

Wool fibre length can be classed as fine, medium or long.

Silk is a continuous fibre length and can be cut to required length.</td><td>All regenerated fibres are continuous filaments of indefinite length. The fibre length is determined in the factory dependant on end use and can vary. Can be cut into staple fibres.</td></tr>
<tr><td>Elastic recovery</td><td>Silk elastic recovery is good, but can lose its elasticity over time. Wool and Mohair, Cashmere and Alpaca elastic recovery is excellent. Crimping of animal fibres helps elastic recovery.</td><td>Viscose, Acetate, Triacetate, Lyocell, (cellulosic fibres) have poor elastic recovery. Viscose and modal wrinkle easily.</td></tr>
</table>
Any other correct/relevant point.

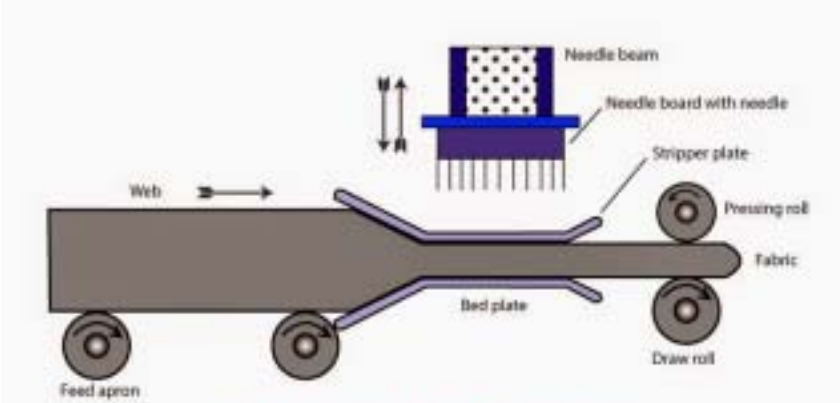
Two marks for each well discussed comparison point.
Max one mark if performance characteristics are given but no comparisons made.
Must have comparison for full marks.
</td><td>6</td><td></td></tr>
</table>

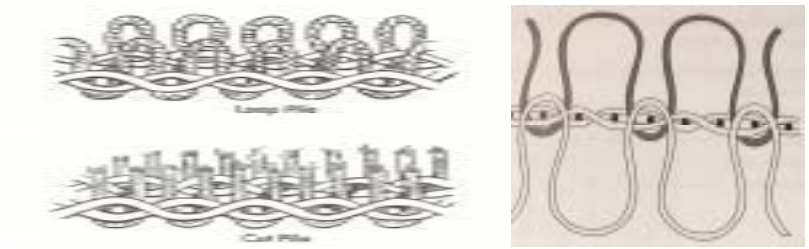
Question	Answer	Marks	Guidance
1(c)	**Explain why fabrics made from regenerated fibres are often used in the manufacture of fashion garments. Give examples of named fibres in your answer.** Answer must relate to the knowledge and understanding of the properties of named regenerated fibres and how they relate to their use in fashion garments. **Viscose** is lustrous and imitates silk. If the fabrics are made from continuous filament viscose, they have a silk-like handle and are cheaper than the equivalent silk fabrics used for luxury garments. Similar properties to silk and more affordable. Soft and comfortable to wear. Can be dyed in a wide variety of colours. Breathable, good drape, lightweight for comfort in garments. Creases easily. **Lyocell** is more environmentally friendly – the process uses an organic solvent which is reused and requires less chemical processing and less chemically-laden waste water. Lyocell is manufactured into sustainable fabrics and is a popular eco-friendly option. Its performance characteristics make it an easy to wear and care for fabric, it has soft handle, good drape, breathable, durable, crease-resistant and biodegradable. It is absorbent and has low warmth. **Modal** is silky, soft, strong, lightweight, stretchy, breathable, durable, environmentally friendly. **Acetate and triacetate** are lustrous, have good drape, silk like qualities without the cost, are thermoplastic and susceptible to damage from heat so need to be washed with care and ironed at cool temperature. Good elasticity. • regenerated fibres are very absorbent so provide comfort for the wearer by wicking away skin moisture; • fibres are fine and soft so comfortable to wear; • can be made into many different types of fabric, so very versatile. Different weights can be produced, e.g. lightweight georgette for scarves, a medium weight such as viscose slub for suiting; • insulation properties can be manufactured into the fibre to suit fashion garments with different end uses; • can be treated to have a variety of textures, e.g. from silky to denim-feel; • good drape ideal for improved appearance of fashion garments; • environmentally friendly compared with other man-made fibres;	**7**	

Question	Answer	Marks	Guidance
1(c)	• no build-up of electric charge on garments; • provide excellent substrates for dyeing and printing fabrics, so fabrics are available in bright colours; • aftercare is easy and suited to fashion garments – washable and easy to iron; • strong when wet or dry; • types of clothing made form cellulosics: blouses, shirts, dresses, ties, dressing gowns, linings, underwear, outerwear; • any other relevant points. **High band: 6–7 marks** A wide range of points will be given, showing thorough, detailed knowledge and understanding of why named regenerated fibres are used in the manufacture of fashion garments. Answer supported by a good number of typical fashion garments made from regenerated fibres and at least two named regenerated fibres. **Middle band: 3–5 marks** A range of points will be given, showing some knowledge and understanding of why regenerated fibres are used in the manufacture of fashion garments. Answer supported by some typical fashion garments made from regenerated fibres and at least one named regenerated fibre. **Lots of fibre examples, but no garment examples – maximum 5 marks.** **Low band: 0–2 marks** Limited answer with little or no explanation as to why regenerated fibres are used in the manufacture of fashion garments. Few or no examples of typical garments made from regenerated fibres. Few or no named regenerated fibres.		

Question	Answer	Marks	Guidance
1(d)	**Discuss the advantages of new developments in fibre and fabric technology. Give named examples of materials in your answer.** Possible answers: • environmentally friendly fibres: hemp, linen, ramie, bamboo, lyocell. Less impact than synthetic fibres on environment due to fibre being sustainable, reduced use of chemicals, biodegradable, increased popularity with consumers, greater demand for environmentally friendly products; • aramid (nomex/kevlar): very strong wet or dry and resistant to high temperatures. These special properties make nomex and kevlar suitable when fabric is required to be resistant to heat. Life-saving/protective uses: motorcycle/racing car protective clothing, bulletproof vests, fire protection wear. Kevlar can be combined with electronics to make metal detector gloves used by policemen to scan for weapons; • elastane (lycra): used when fabric needs a high stretch: sportswear, underwear, swimwear, socks. Provides increased comfort to garments for consumers; • microfibres: usually polyester or nylon, very soft and absorbent, suitable for sportswear as wicks moisture away from skin increasing comfort. Used in cleaning cloths as more hygienic and effective than natural materials; • neoprene: a rubber fabric, extremely strong, water and weather resistant properties. Variety of uses in sportswear, wetsuits, hoods, gloves, knee supports etc., enables consumers to access a wider variety of sports at different weather and water conditions; • gortex: breathable, waterproof and windproof fabric – specialised fabric suitable for outdoor wear, increased comfort for wearer, protection from poor/extreme conditions, allows wearer access to more outdoor activities; • medical textiles: mattresses that respond and mould to shape of user – added comfort, helps/supports back problems; • phosphorescent materials: used for protective clothing, glow in the dark, increased safety for wearer; • reflective inks: used in clothing worn by emergency services which makes fabrics visible in the dark, reflect light even under water; • microencapsulation: fabrics contain beneficial substances in microscopic capsules, e.g. antiseptics in medical wipes/bandages, scents in underwear, sunblock in swimwear, antibacterial chemicals in socks, etc.;	**8**	Please check on the Internet any unusual responses.

Question	Answer	Marks	Guidance
1(d)	• electronic textiles: wearable computers, sportswear that monitors progress, etc.; • geo textiles: used in building construction, e.g. roofs, protective layers in road and rail construction; • nano-fibres/nanotechnology: extremely lightweight, delicate yet strong fibre. Often applied to fabrics as a finish and has enhanced, useful properties: spill resistant fabrics, stain repellent, moisture wicking without altering the feel or losing comfort of fabric; • new recycling methods used to make fibres and fabrics; • any other new developments not listed above; • any other relevant points. **High band: 6–8 marks** A wide range of advantages of new developments in fibre and fabric technology. Detailed examples of smart and modern materials will be given, showing thorough, detailed knowledge and understanding of their uses. Discussion is logical, clear and well structured. **Middle band: 3–5 marks** A range of advantages of new developments in fibre and fabric technology. Some examples of smart and modern materials will be given, showing some knowledge and understanding of their uses. Any discussion is mostly logical, clear and may have some structure. **Low band: 0–2 marks** Limited answer with little or no discussion as to the advantages of new developments in fibre and fabric technology. Few (if any) name examples of smart and modern materials will be given. Little or no discussion, often a brief list, sometimes unclear, without any structure.		

Question	Answer	Marks	Guidance
2(a)(i)	**Describe how the following fabrics are constructed. You may use labelled diagrams to support your answer: needle-punched fabrics.** Possible answers:  Fig: Basic principle of needle punching https://textileapex.blogspot.com/2014/09/needle-punching-method-nonwoven.html • **Bulky fibre web** is passed into the bed plate; • **Repeatedly penetrated by barbed needles** fixed to a single needle board; • Each **needle barb grips** and drags fibres to a new position, forming loops **intertwining / matting fibres**; • The result is a **compressed dense felted fabric** made up of intertwined / entangled fibres; • May be made from synthetic fibres or protein fibres. **1–2 mark(s)** for brief description. **3–4 marks** for detailed and accurate description. Give credit for relevant diagram.	**4**	

Question	Answer	Marks	Guidance
2(a)(ii)	**Describe how the following fabrics are constructed. You may use labelled diagrams to support your answer: woven terry towelling fabrics.** Possible answers:  **Reference:** N.Hollen and J.Saddler, Textiles, 3rd Edition, MacMillan Company **Reference:** Design & Technology Fashion and Textiles Pauline Treuherz, Amanda Dick and Denise Davies • Based on a plain weave, which has an additional set of loops woven through the surface of the fabric; • A 3-yarn system weave where a third yarn, which makes the loops, is woven in with the warp and weft; • The extra pile warp remains slack and loops above and below the fabric to form the uncut loop pile; • Loops can be formed on **one or both sides** of the fabric; • Loops are left uncut to form pile on the surface of the fabric, which is what gives terry the distinctive looped surface texture on both sides; • Usually made from cotton fibres for absorbency (viscose, cheaper alternative); • Produced on a double needle bed machine. **1–2 mark(s)** for brief description. **3–4 marks** for detailed and accurate description. Give credit for relevant diagram.	**4**	

Question	Answer	Marks	Guidance
2(b)	**Discuss the uses of non-woven fabrics. Give examples to support your answer.** Examples: • geotextiles – allow water to pass through whilst keeping fine particles of soil out; • surgical gowns; • cleaning cloths; • needlefelt – bags, etc.; • nappies; • insulating materials; • car interiors; • bandages and dressings; • masks and other wearable products; • surgical drapes; • filtering material; • crop protection material; • orthopaedic and tissue structures. Performance characteristics of non-wovens that make them suitable for end uses, and points which can be considered when evaluating the uses of non-woven fabrics: • disposable; • eco-friendly: the bonded fabric can be made from both manmade and natural fibres. This means they can be biodegradable; • cheap to make as fabric is made directly from fibres, therefore economical to buy, easily cut using lasers; • hygienic as suitable for single use; • single use product so reduces contamination/reduction of risk from microbes that cause disease; • can be impregnated with beneficial chemicals; • soft on skin: cotton is a very popular choice due to the comfort factor and breathability; • air permeable so allows skin to breath. Any other relevant points.	**7**	

Question	Answer	Marks	Guidance
2(b)	**High band: 6–7 marks** A wide range of uses of non-woven fabrics will be given, showing thorough, detailed knowledge and understanding. Evaluation gives clear judgements as to the suitability of non-woven for correctly named use. A wide range of detailed examples will be given to support the points made. **Middle band: 3–5 marks** A range of uses of non-woven fabrics will be given, showing some knowledge and understanding. Evaluation gives some judgement as to the suitability of non-woven for correctly named end use. A range of examples will be given to support the points made. **Low band: 0–2 marks** Limited answer with little or no evaluation of the uses of non-woven fabrics. Few, if any relevant named uses will be given. Evaluation is sometimes unclear with little, or no, judgements made to the suitability of non-woven for use.		

Question	Answer	Marks	Guidance
2(c)	**Discuss the performance characteristics of the following fabrics in relation to their end uses:** **(i) woven terry towelling fabric** **Uses:** towels, bathrobes, bedlinen, reuseable nappies (diapers), sports socks Performance characteristics that make **woven terry towelling fabric** suitable are: • fibre content is usually 100% cotton, but may sometimes contain polyester for added durability/elastane for added comfort. Only slight stretch on bias so added elastane gives comfort needed for end uses such as socks or nappies (diapers); • high moisture absorption due to woven loop structure and enhanced by using cotton fibre – ideal for drying with towels. Terry towelling socks can absorb moisture away from feet enhancing comfort; • good drape depending on thickness and weight of fabric. Can be bulky and heavy with moisture absorption, but still drapes well; • strong and durable for long lasting products that undergo frequent washing such as towels, bedlinen and nappies (diapers). Loops are a weakness in that they can get caught and snag/pull the yarn from the fabric surface; • very soft and comfortable close to skin due to raised pile/loops and cotton fibre is soft; • good insulation due to air trapped in loops. Loops hold fabric away from skin trapping further air and insulating. Towels and bathrobes need to be warm against wet skin; • easy to care for, can be washed regularly at high temperatures to remove any bacteria forming on damp socks, towels, nappies (diapers). Very crease resistant due to loop structure and doesn't require ironing. **(ii) knitted tricot** **Uses:** active wear, swimwear, lingerie, sportswear, blouses, linings and gloves Performance characteristics that make **knitted tricot** suitable are: • softness of handle so comfortable against skin; • good elasticity provides comfort and flexibility in sportwear where garments are required to be flexible and maintain shape. Good elasticity prevents sagging and misshaped garments after strenuous activity;	**10**	

Question	Answer	Marks	Guidance
2(c)	• crease resistant so ideal for keeping garments looking good in use and ironing of sportswear and blouses is not required. Gloves don't become creased with finger movements; • good drape so flattering for blouses and lingerie; • breathable/wicking moisture away from skin/allowing the skin to breathe providing comfort against the skin. Any other relevant points. **High band: 8–10 marks** A wide range of performance characteristics for both will be given, showing detailed knowledge and understanding of each fabric in relation to their end uses. Discussion gives detailed reasons as to why the performance characteristics make them suitable for a wide range of correctly named end uses. **Middle band: 4–7 marks** A range of performance characteristics for both will be given, showing some knowledge and understanding of each fabric in relation to their end uses. Discussion gives some reasons as to why the performance characteristics make them suitable for a range of correctly named end uses. **Low band: 0–3 marks** Limited answer with little or no discussion on how performance characteristics relate to their end uses. Few, if any relevant named uses will be given. Maybe only one discussed.		

Section B

Question	Answer	Marks	Guidance
3(a)	**Explain what is meant by the following in relation to garment design:** **(i) shape** **(ii) balance** **(iii) texture** Possible answers: **Shape:** describes the outer dimensions of a garment, can refer to how the garment reveals the shape of the body, shapes of garments are determined by trends, can refer to outline shape of human body or how the garment highlights body shape. Can refer to the silhouette of a garment. Shapes in fashion change over time. Examples include A line, Princess line, Y line, H line, etc. **Balance**: can be achieved with the use of seams, hemlines, and necklines. Balance relates to the whole look of the garment and is usually symmetrical in fashion design (for example, a straight hemline), however asymmetrical **balance** (for example, single sleeved tops, asymmetrical hemlines or necklines) is currently in fashion and can be effective. Both sides are identical in symmetrical balanced fashions. Pockets on both sides of a garment show balance. **Texture:** describes the feel/touch/handle of a garment and plays a major role in good garment design, it also affects the appearance, comfort and has an impact on drape. May refer to the yarns, fabric or surface decoration on a garment. Any other relevant points. **Max two** marks for each. Give credit for labelled sketches.	**6**	

Question	Answer	Marks	Guidance
3(b)(i)	**Sketch and label <u>one</u> design for a lady's shirt to show how shape, balance and texture can be used together in garment design.** Possible answers: Front and back views showing design features to illustrate shape, balance and texture. **Shape** could include fitted or loose shirts, flared, different types of sleeve (for example bell, puff sleeve), different lengths, etc. **Balance** could include pockets, seams, asymmetrical/symmetrical hemlines/necklines/cuffs, fabric decoration could be placed for balance. **Texture** could include fabric names (for example silk, viscose, poplin, flannel, taffeta, chiffon etc.) and a correct description of the texture, manipulated fabrics, patchwork, combination of fabrics of different textures. Surface decoration, frills, trimmings, beadings, appliqué, quilting, components and accessories may be sewn on to add texture. Any other relevant points. **One** mark for well labelled sketch. **Up to three** marks for appropriate use of design features. **Shape, balance and texture must be labelled accurately to gain full marks.**	**4**	

Question	Answer	Marks	Guidance
3(b)(ii)	**Explain <u>three</u> ways in which the <u>texture</u> shown on your design for a lady's shirt in <u>3(b)(i)</u> could be developed.** Possible answers: • suitable named fabrics, yarns/fibres/components; • explanation must relate to shirt design in **3(b)(i)**; • description of any of the following methods of adding texture: quilting, ribboning, adding a frill/trimming, beading, appliqué, reverse appliqué, smocking, tucks, pleating, patchwork, hand embroidery, fabric bows, fabric flowers, piping, etc.; • description of textures of different fabrics; • evidence of creativity. Example: **Appliqué** – the floral pattern on the denim shirt could be developed by using the appliqué technique. Flowers could be cut out of a variety of fabrics of different textures, e.g. satin, chambray, crepe and velvet. Interfacing is used under the flower pieces to give some stability for stitching onto the shirt. **The flowers are then stitched using a zig zag stitch on the sewing machine. A contrasting colour thread would be used for decoration.** The layering of different textured fabrics creates an interesting appearance on the shirt. The two larger flowers could be appliqued by hand using decorative embroidery stitches such as satin stitch, running stitch or blanket stitch. Any other correct method to add texture. **Max two** marks if explanation does not relate to design in 3(b)(i). **Max four** marks for only two methods explained. **For full marks three methods must be well explained and developed in relation to design in 3(b)(i).**	**6**	

Question	Answer	Marks	Guidance
3(c)	**Evaluate the use of Computer Aided Design (CAD) to create design ideas.** Possible answers: • CAD software links with CAM enabling designing and making processes more efficient; • CAD software allows designs to be changed quickly and frequently on screen rather than by hand, saving time and energy; • CAD software allows designs to be experimented with using different colours, shapes, patterns and textures. Thus, saving on physical resources such as paper, pens, fabric; • accurate presentation boards can be generated using CAD to present ideas to client; • digital ideas can be presented using real life images and colourways in high quality; • CAD software allows repeat patterns for fabric prints and surface decoration patterns to be developed instantly, rotated, repeated, colourways, size changed to best fit fabric/textile product; • fabric designs can be placed on a 3D garment to see what it looks like; • photographs can be scanned into designs; • virtual products can be viewed prior to making lowering risk of costly mistakes; • design ideas can be emailed for instant feedback speeding up design process; • designs can be changed quickly, including design features and surface pattern ideas, according to almost instant electronic feedback. Decision making process is speeded up; • can save money by not having to make expensive prototypes prior to production; • designing and manufacturing often in different parts of the world, so electronic copies of designs enables faster communications; • designers have access to databases of designs that can be useful for development saving time on redesigning; • many companies have invested significant amounts of money in CAD to compete in global market place to allow for quick changes in fashion. • few disadvantages: initial high investment costs, but may save long term labour costs, requires every company involved to have access to compatible electronical systems.	**9**	

Question	Answer	Marks	Guidance
3(c)	**High band: 7–9 marks** A wide range of uses of CAD for creating design ideas will be given, demonstrating detailed knowledge and understanding. Evaluation includes clear reasons as to the advantages/disadvantages/worth of use of CAD for designing. **Middle band: 4–6 marks** A range of uses of CAD for creating design ideas will be given, demonstrating detailed knowledge and understanding. Evaluation includes some reasons as to the worth of use of CAD for designing. **Low band: 0–3 marks** Limited answer with little or no evaluation as to the worth of CAD for creating. Few, if any relevant uses will be given. The answer may be presented as a list of uses rather than an evaluation.		

Question	Answer	Marks	Guidance
4(a)	**Define the term one-off production in clothing manufacture.** Possible answers: • one or more highly skilled worker(s) will produce a single product for a customer to a specific brief; • product will be original/unique and finished to a high standard; • examples: wedding dress, theatrical costume; • bespoke/couture/made to measure. **One** mark per point. **Two** marks for a well-explained point.	**2**	

Question	Answer	Marks	Guidance
4(b)	**Explain why the following production methods are used:** **(i) mass production for socks** **(ii) batch production for fashionable dresses** Possible answers: **(i) mass production** Reasons for choice: • style of socks does not change so can be produced in huge quantities made repeatedly in assembly lines; • fast and continuous method of production to meet demands; • identical socks are made very quickly keeping costs down for basic every day item of clothing in high demand. **(ii) batch production for fashionable dresses** Reasons for choice: • dress styles change according to season/trends/lifestyle/fashion; • flexible production system can change according to market demand for different styles; • fixed quantities of the dress are manufactured to order; • dresses can be manufactured to fit a range of standard sizes and shapes; • materials and manufacturing are cost effective. Any other correct point. **One** mark for each point. **Two** marks for well explained point.	**6**	

Question	Answer	Marks	Guidance
4(c)	**Contrast the different stages involved from creating an initial pattern to cutting out the fabric in one-off production and in batch production.** Possible answers: One-off production: • pattern construction – block patterns may be used as a starting point to build templates. Basic block pattern pieces are adapted and checked on a mannequin or the customer. Card templates drawn by hand to customers actual body size measurements. A toile is made to test adapted pattern pieces and checked on a mannequin or customer. Further adaptions to the pattern size and/or shape are made. Seam allowance must be calculated and added to each pattern piece. A specialist's skills or training are required. Patterns may need redrafting several times; • sizing – the individual customer's measurements are taken by hand. Pattern pieces fit one size only; • grading – not required as a single unique garment is being made to customers sizes; • lay planning and spreading – the most economical way to lay out the card pattern pieces will be calculated manually by trial and error. Fabric will be spread flat on a large table, single or double thickness, pattern pieces will be pinned to fabric; • cutting – by hand shears. Batch production: • pattern construction – pattern design systems (PDS) are computer programmes that make paper templates automatically from computer generated 3D models. PDS can produce patterns using basic blocks stored in the system or has existing standardised pattern shapes. Existing patterns can be adapted much quicker and more accurately than by hand. Specialist skills are not required. The software calculates the number of pattern pieces needed and automatically includes seam allowance; • sizing – standardised sizing is used and multi-sized pattern pieces are created by the PDS system; • grading – grading is automatically included on pattern so can be used to make a range of different size products; • lay planning – if the factory is fully automated, the PDS can produce a lay plan which is sent to the automatic computer-controlled fabric laying and cutting system;	**10**	

Question	Answer	Marks	Guidance
4(c)	• spreading – roll of fabric will be spread automatically or manually onto a large table, many layers of fabric will be placed one on another – up to 50 layers depending on fabric thickness and/or how many items are being produced. It may be computerised; • cutting – fully automatic computer controlled cutting machines use knives, laser beams and high-pressure water jets to cut layers of fabric. Fabric can be automatically cut without need for pattern templates. Alternatively, fabric can be cut by hand using an electric or band knife. **High band: 8–10 marks** A wide range of points will show detailed knowledge and understanding of the contrast between the stages involved in pattern making for one-off production with batch production. A good number of detailed examples will be given to support the points made. **Middle band: 4–7 marks** A range of points will show some knowledge and understanding of contrasting the stages involved in pattern making for one-off production with batch production. Some examples will be given to support the points made although there may be some errors or omissions. **Low band: 0–3 marks** There will be little or no contrasts made or knowledge of the stages involved in pattern making for one-off/batch production. Few, if any, examples will be given and the answer may be presented as a list. There may be a list of points for one method only with no contrasts made.		

Question	Answer	Marks	Guidance
4(d)	**Compare the industrial methods of pressing garments.** Possible answers: • methods and equipment dependent on volume of shirts being finished; • moulding: shirt sleeves could be moulded and pressed on a sleeve board using a hand steam iron. Creases are removed with a combination of heat, pressure and moisture. Thus, enhances the appearance and give shape to the sleeve; • steam dolly: ideal for skirts, trousers and dresses. A steam dolly is inflated inside the garment using steam and air removing creases and shapes the garment. It is difficult for the dolly to remove creasing from areas such as shirt collars and cuffs. The garment will then be manually checked and any further creasing/finishing needed is spot pressed with a steam iron; • tunnel finisher: more suited to pressing shirts than steam dolly. Shirt is hung on a hanger, passes through a tunnel, steamed and dried. Minimal handling of shirt required so suitable for delicate shirt fabrics. Highly automated and used for batch production of large numbers of shirts. Manual spot pressing of collars and cuffs will be carried out with a steam iron to improve quality and enhance structure/shape; • presses: suitable if lower volumes of shirts are needed. More shirts can be pressed per hour than a steam dolly, but less than a tunnel finisher. Moulding press more suitable for shirts with sleeves, collars and cuffs which may be misshaped under a flat-bed press, more suited for finishing trousers. **High band: 6–7 marks** A wide range of points will show detailed knowledge and understanding of the comparisons between the industrial methods of pressing garments. A good number of detailed examples will be given to support the points made. **Middle band: 3–5 marks** A range of points will show some knowledge and understanding of the comparisons between the industrial methods of pressing garments. Some examples will be given to support the points made although there may be some errors or omissions. **Low band: 0–2 marks** Limited answer with little or no comparison of industrial methods of pressing. Few, if any, examples will be given and the answer may be presented as a list. There may be a list of industrial methods of pressing garments only with no comparisons made.	**7**	