

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

MARK SCHEME for the October/November 2014 series**9631 DESIGN AND TEXTILES****9631/03**Paper 3 (Textile Applications and Technology),
maximum raw mark 100

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.

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Section A

Answer both questions.

1 There are many styles of sports clothing made from a variety of different fabrics.

(a) List three items of sports clothing, and name one different fabric for each item. [3]

Answer could include:

- Jacket for running – polyester tricot with special waterproof finish
- Jogging trousers – knitted cotton/polyester sweatshirt fabric
- T-shirt – cotton jersey
- Pleated skirt for netball – plain weave polyester (heat set pleats)
- Any suitable fabrics and any garments but must have a detailed fibre, fabric name/description for full marks; e.g. Speedo 'fastskin' for swimwear
- Swimwear; ski-wear; boxing; football; walking; mountaineering.

1 mark for each detailed point.

(b) Sketch and label two of the items of sports clothing from (a). Justify your choice of fabrics and designs. [6]

Answer could include:

- Labelling – could include neckline e.g. open style for good ventilation when running etc.
- Style – e.g. loose fitting for ease of movement
- Position of seams – e.g. raglan for ease of movement for arms
- Fastening – e.g. zip fastening for ease of taking on/off
- Special features – e.g. pockets for lights, or reflective bands for running at night
- Goretex and other wicking fabrics; fleeces
- Suitability of fabrics: Fabric – e.g. cotton fabric for absorbency; polyester knitted fabric for flexibility and firmness; nylon for strength
- Special fabric finish for a particular use – e.g. heat set permanent pleats; etc.
- Additional points: knitted fabrics have stretch properties and are ideal for body movement; they are close fitting and mould to fit the body; no fastenings are needed; new synthetics are breathable e.g. microfibers; Lycra used for stretch properties; fabrics must be suitable for wearing
- Any other relevant point.

Detailed labelling and reason for chosen fabric must be given for full marks.

1 mark for each detailed point.

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- (c) Discuss the factors which need to be considered when writing a specification for fabrics and components for sports clothing. [7]

Answer could include:

Suitable fabrics:

- **Fibre type** for specific properties e.g. absorbency, strength, washability; strength, depending on type of sport
- **Structure of fabric** e.g. knitted is more flexible for movements; woven is firm but Lycra could be added for more 'give'
- **Colour and type of dye** for the sport e.g. may be team colours, or a colour traditionally used for a sport e.g. white for tennis
- **Fabric properties** in use e.g. creasing – does the fabric crease easily or do creases dropout
- Weight of fabric e.g. lightweight fabrics for running so body feels comfortable;
- Fashion trends; answers related to type of sport
- **Special finish** – is this needed? For example, a polyester may be used which has absorbency properties due to its structure (hollow core)
- Climate; indoor/outdoor use; cost of fabric; type of sport
- **Other materials** e.g. thread – fibre content may be the same as the fabric
- Fastenings e.g. zip or Velcro – is the colour/weight suitable for the fabric
- Trimmings e.g. reflective tape – is this washable?
- Components: zips, thread, toggles, buttons, press-studs, attached logos etc.
- Any other appropriate point which relates to fabrics.

1 mark for each well-discussed point.

High band:

The answer will contain well informed discussion of the fabric specification with a number of detailed examples of factors for sports clothing. [6–7 marks]

Middle band:

The answer will include some discussion of the fabric specification with a small number of detailed examples some of which may be brief, of factors for sports clothing. [3–5 marks]

Low band:

The answer may include limited discussion of the fabric specification with a limited number of examples of factors for sports clothing. Some of the points may be inaccurate. [0–2 marks]

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- (d) Assess a variety of suitable fabric finishes which improve the handle and performance of fabrics for sports clothing. [9]

Answer could include:

Permanent finishes which improve handle and performance (function):

- Mechanical finishes e.g. raising, brushing and napping where staple fibres on the fabric are plucked to increase surface area and allow air pockets to be trapped, making the fabric warmer. This is important for sportswear as sports people need warmth for the body at certain times.

Chemical finishes such as:

- Shrink resistance – to keep same shape and size after laundering
- Permanent press/creases to keep the item performing well in use
- Water repellence – useful for outdoor clothing and where non-absorption is required e.g. jackets
- Easy care finishes – as resin finish on synthetics (polyester/nylon etc.) which is used to reduce creasing and make the fabric easier to look after and keeps the performance of the fabric at its best condition
- Calendaring – used on all types of fabrics to make a smooth surface which makes the performance better by reducing dirt etc.
- Dirt repellent
- Any other finishes relevant to the fabric chosen.

1 mark for each well-discussed point.

Full marks to be given to answers which include details of the fabrics, how the finish improves the fabric (technical details).

High band:

The answer will contain well informed discussion of fabric finishes and how they can improve handle and performance of fabrics for sports clothing. [7–9]

Middle band:

The answer will include some discussion of fabric finishes and some discussion of how they can improve handle and performance of fabrics for sports clothing. There may be some omissions and errors. [3–6]

Low band:

The answer may include limited discussion of fabric finishes and few examples of how they can improve handle and performance of fabrics for sports clothing. Relevant details will be limited or omitted. [0–2]

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2 Surface decoration is a popular method to enhance fashion items.

- (a) Explain four factors which need to be considered when choosing which type of appliqué to work on a fashion item.**

[4]

Answer could include:

- The type of item to be decorated; cultural references; current trends; costs
- The skills available to carry out the surface decoration e.g. hand or machine
- The type of fabric for the item; colour of fabric
- The type of machinery available for working the appliqué
- The complexity of the appliqué design; type of thread; size of appliqué
- Stitched/glued; Bondaweb; stabilising; what the item is used for; laundry/care
- Any other appropriate point.

1 mark for each correct point.

- (b) Sketch and label two dresses which could be worn to a named special occasion and use appliqué and one other type of surface decoration, in a creative way.**

Answer could include:

- Sketch could be sketched using the silhouette provided
- Front and back view to be included
- Special occasion to be named
- All style features to be labelled to gain marks
- Types of appliqué which could be used: standard appliqué using small shapes of fabric which are applied to a background fabric; reverse appliqué (or Mola work)
- Appliqué worked by hand or by machine.

Other types of surface decoration could include:

Embroidery (hand or machine); added trimmings e.g. lace/beading; sequins; painting; colour added e.g. screen printed, block printed, silk painted, etc.

1 mark for each well-labelled point.

Two types of surface decoration must be included for full marks.

[6]

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(c) Compare how the appliqué for one of the dresses could be worked:

(i) by hand for one-off production;

[4]

Answer could include:

When applique is worked by hand, the following points will be relevant:

- Cut out the applique shapes
- Attached them to the fabric e.g. pins/tacking
- Bondaweb to fuse the shapes to the background
- Vilene or other stiffening may be used to give the fabric more body or if a knitted fabric is used for the base; iron-on Vilene
- Permanent stitching will be worked by hand in the form of oversewing, or decorative stitch such as feather stitch
- Remove pins/tacking after permanent stitching has been worked
- buttonhole
- Zig-zag
- Press the fabric on wrong side
- Skilled labour needed; could use CAM; longer time taken.

1 mark for each well-described main point.

(ii) by machine for batch production.

[5]

Answer could include:

By machine (batch production), pins unlikely to be used but fabric preparation as for hand method (above), will apply:

- Special machine for appliqué only may be used
- Stitch to be used e.g. zig-zag stitch or satin stitch
- If the applique is made up of more than one shape, one machinist may work all the first pieces, and a second machinist may work all the second pieces
- The work will be inspected on a regular basis for quality (quality control)
- Computerised machine would trim excess fabric.

1 mark for each well-described point.

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(d) Discuss the factors which cause physical wear of surface decoration. [6]

Answer could include:

- Surface decoration is anything which is added to the main fabric e.g. added fabric (appliqué) trimmings (e.g. beading, buttons as decoration, etc.); could include printing e.g. block
- Physical wear: snagging of threads from the surface
- Dust and dirt attached to the surface which is difficult to remove and may need laundering
- Effect of sunlight causing fading: some colours may fade worse than others so the overall effect may look worn
- Surface may be subject to surface abrasion so some threads may be worn away and the stitching may be coming undone; threads may wear differently
- The background fabric may be worn away even though the surface decoration is intact and undamaged.

1 mark for each well-discussed point.

High band:

The answer will contain well informed discussion of the factors which cause physical wear of surface decoration with detailed examples given. [5–6]

Middle band:

The answer will include some discussion of the factors which cause physical wear of surface decoration. There may be some examples with omissions. [2–4]

Low band:

The answer may include limited discussion of how some of the factors which cause physical wear of surface decoration. There may be omissions with few if any examples and the answer will lack detail. [0–1]

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Section B

Answer two questions.

3 Colour is important in the fashion industry.

- (a) State four factors which a fashion designer needs to consider when choosing colour(s) for fashion items. [4]

Answer could include:

- Type of garment being designed e.g. day/evening wear; target group; cultural preferences
- Which season the item is being designed for e.g. summer/winter
- The colour trends which have been forecast for a particular season e.g. there may be a group of dominant colours such as a primary colours
- The preferences of the customer/client
- Whether the fabric is being dyed especially for the fashion items or if the fabric is already dyed and available
- Whether the fabric chosen can be dyed any colour or in a restricted colour range (e.g. type of dye available for the fabric).

1 mark for each well-described point.

- (b) (i) Sketch and label a coloured design suitable for a shirt which could be silk painted. [4]

Answer could include:

- Design needs to be suitable for colours
- Design needs to be suitable for the shirt
- Design needs to show one or more colour
- Design needs to be suitable/appropriate to all cultures/religions
- Good quality sketch available so that all details are shown and labelled.

1 mark for each well-sketched and labelled relevant point.

- (ii) Justify your choice of design and colour(s) for the shirt in (b)(i). [4]

Answer could include:

Design: needs to be appropriate for the style and for the position on the shirt;
needs to be suitable for repeats; needs to fit the theme;

Colour: needs to follow current trends; needs to fit the theme;
will depend on the occasion;

1 mark for each well-justified point.

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(c) Discuss the most effective way of caring for silk painted textile items. [5]

Answer could include:

- Usually produced by hand so care would be needed to preserve the colour and design
- Use specially designed washing liquids for delicate fabrics
- Test for colour-fastness
- Don't let fibres get too dirty
- Cool water to be used so the colours do not run into each other
- Rinse carefully so that all soap has been rinsed
- Dry flat so that the fabric is not stretched or damaged
- Silk is a delicate fabric and needs careful handling
- Additional points: Test for colour fastness before attempting to wash. Dip a small piece into cool water, place on a white material and run a warm iron over it
- If any colour is dispersed then the item is not colour fast. Dry cleaning is recommended
- 'Use a mild detergent suitable for silk if washing by hand or machine'
- 'Rinse carefully so all the detergent is rinsed.' Excess water may be removed by rolling the item in a towel. Hang dry. Never leave wrapped in a towel. Silk is prone to water staining avoid using a steam iron
- Do not allow the item to get too dirty as rubbing of fibres may damage them
- Keep away from direct sun and heat
- Ironing instructions (avoid steam iron in case of water marks); mothproof to stop damage when stored
- Can be dry-cleaned
- Storage of items.

1 mark for each well-discussed point.

High band:

The answer will contain well informed discussion of the most effective way of caring for silk painted textile items. Detailed examples will be included. [4–5]

Middle band:

The answer will include some discussion of the most effective way of caring for silk painted textile items. Some examples may be given and may include errors. [2–3]

Low band:

The answer may include limited discussion of the most effective way of caring for silk painted textile items. Few if any examples will be included. [0–1]

[Total: 25]

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(d) Assess the suitability of the following for colouring fabric: [8]

(i) natural dyes;

Natural dyes are based on vegetable or animal sources; more suitable for one-off items.

Answer could include:

- Natural dyes do not keep their colour very effectively and need mordants to help keep the colour in the fabric
- Different mordants are available for different fabrics and dye stuffs
- It is difficult to repeat the colours exactly
- Mordants may be toxic.

1 mark for each well-discussed point.

(ii) synthetic dyes.

Synthetic dyes are always the same each time they are used; more suitable for batch production;

Answer could include:

- Mordants needed to fix colours
- Mordants may be toxic
- Any types of dyes for different types of fabrics
- There is a wide range of colours which can be repeated exactly every time.

1 mark for each well-discussed point

High band:

The answer will contain well informed discussion of the suitability of natural dyes and synthetic dyes for silk painting. Reference will be made to a range of types of dyes and detailed examples will be given. [6–8]

Middle band:

The answer will include some discussion of the suitability of natural dyes and synthetic dyes for silk painting. Reference will be made to types of dyes and some examples may be given. [3–5]

Low band:

The answer may include limited discussion of the suitability of natural dyes and synthetic dyes for silk painting. Little reference will be made to specific examples and there will be omissions and errors in the information. [0–2]

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4 The selection of appropriate materials needs to be considered when designing and making textile items.

(a) Sketch and label a textile accessory which makes use of two different fabrics and could be sold from a small retail outlet. [3]

Answer could include:

- Types of textile accessory: hats, bags, belts, etc.; also accept 'home' accessory e.g. cushion/table runner, etc.
- Use of different fabrics: need to show the use of two fabrics
- Well-labelled sketch showing details.

(b) Justify the design in (a) in terms of aesthetic appeal and cost. [4]

Answer could include:

- **Aesthetic appeal:** what the item looks like, in terms of colour, style, fashion and current trends
- **Cost:** this will depend on the customer (target market) and their choices; costs of fabric used, labour costs to produce the items
- Texture; fastenings
- Quality of item – good quality items will cost more but may last longer
- Final cost of item.

1 mark for each well-discussed point.

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- (c) Discuss the main factors a manufacturer will need to consider when selecting materials for the textile accessory before producing a small batch of the items. [8]

Answer could include:

- How many of the items are to be produced so how much material to order
- The cost of the materials e.g. quality of the materials needed
- What colour the fabric needs to be
- Will garment be dyed before or after manufacture?
- Does fabric stretch; is fabric suitable for item e.g. hard-wearing; whether the fabric needs to have a special finish or special dye
- Whether to have woven fabric or knitted fabric
- Whether the types of machines available can sew the materials
- How long they will have to wait for the materials to be delivered
- Whether they have enough storage space for the materials needed
- Whether all the materials can be purchased from the same place.

1 mark for each well-discussed point.

High band:

The answer will contain well informed discussion of the main factors a manufacturer will need to consider when selecting materials for a textile accessory. Detailed examples will be included. [6–8]

Middle band:

The answer will include some discussion of the main factors a manufacturer will need to consider when selecting materials for a textile accessory. Some detail may be given although there may be omissions. [3–5]

Low band:

The answer may include limited discussion of the main factors a manufacturer will need to consider when selecting materials for a textile accessory. Few examples will be given and there will be omissions. [0–2]

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(d) Assess the range of closures (fastenings) available to the garment/accessory manufacturer. [10]

Answer could include:

- Types of fastenings and materials they are made from
- Such as: zips (open-ended and closed, metal teeth or plastic, colour to contrast or blend with the fabric)
- Buttons (flat, with shank, covered, pearl, shell, wooden, plastic, etc.)
- Self-fabric fastenings e.g. rouleau loops, ties
- Ribbons used as ties
- Velcro; press-studs/poppers; buckles
- Hooks and eyes and hooks and bars
- Position of fastenings on garments
- Colour of fastenings
- Whether fastenings are decorative or functional or both
- Give credit for relevant labelled sketches.

1 mark for each well-discussed point.

High band:

The answer will contain well informed assessment of the range of closures (fastenings) available to the garment/accessory manufacturer. A number of detailed examples will be included. [8–10]

Middle band:

The answer will include some assessment of the range of closures (fastenings) available to the garment/accessory manufacturer. A number of examples will be included although there may be omissions. [4–7]

Low band:

The answer may include limited assessment the range of closures (fastenings) available to the garment/accessory manufacturer. Limited examples and there my only be a list. [0–3]

[Total: 25]

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5 Design and construction of textile products includes many processes.

(a) Explain two reasons why good design in fashion items is important. [2]

Answer could include:

- Customers are more likely to buy the items if they are well-designed
- Well-designed and made items may be kept longer by the customer (e.g. classic item)
- May start a new trend if popular; consideration of culture/religion
- Status in society e.g. good design may indicate higher cost/quality
- More variety when choosing items; better drape/shape
- Good design may be easier to construct i.e. well thought-out
- Good reputation for others if the item is well-designed; environmental reasons (life cycle).

1 mark for each well-explained point.

(b) (i) Sketch and label two ideas for women's summer jackets. [4]

Answer could include:

- Good quality sketches showing details
- Well-labelled sketch showing a range of style features, to include some of the following: seams, fastenings, additional features such as pocket/trimmings; type of fabric chosen; colour(s) of item
- Front and back view of item
- Use of silhouette if appropriate.

1 mark for each point.

(ii) Justify your choice of design (style), fabric and colour for both jackets. [6]

Answer could include:

Design:

May be for special occasion e.g. evening or formal wear; winter or summer wear may have different styles.

Fabric choice:

Will depend on season, style of jacket, cost of final item will depend on quality of fabric and whether natural (can be more expensive) or synthetic (more variety and can be cheaper).

Colour choice:

Will depend on the season, trends, customer requirements, etc. purpose/use of jacket; is it lined; availability of materials; uniforms; cultural reasons; time; cost; quality requirements.

1 mark for each relevant well-discussed point.

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- (c) Discuss six factors which need to be considered when selecting construction processes for one of the jackets in (b). [6]

Answer could include:

- **Fabric:** whether the construction processes are suitable for the fabric e.g. if the fabric is slippery (more difficult to handle) or firm (may be hard to stitch and need special needles or feet on the sewing machine)
- **Skills available** by person making the item: this will depend on whether the item is made at home or by a manufacturer (may have more skilled workers with variety of skills)
- **Quality of finish** on processes e.g. stitches well finished; French seams instead of overlocked seams
- **Ease of attaching** e.g. zip may be easier than hooks and eyes, this will depend on type of fabric and availability of skills
- **Machinery available** e.g. if an overlocker is available, it is much easier to give seam edges a professional finish e.g. buttonhole foot (or a buttonhole machine if item is to be manufactured)
- **Time and cost:** will the processes be completed within time to meet the deadline
- **Durability** of construction processes e.g. washable or not; construction processes suitable for style of garment e.g. casual loose-fitting garment may have few darts

1 mark for each well-discussed point.

High band:

The answer will contain well informed discussion of six factors which need to be considered when selecting construction processes with a number of detailed examples. [5–6]

Middle band:

The answer will include some discussion of some factors which need to be considered when selecting construction processes although there may be omissions and answer may lack detail. [2–4]

Low band:

The answer may include limited discussion of few factors which need to be considered when selecting construction processes although some points may be presented as a list with no discussion and few if any examples. [0–1]

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(d) Compare a range of different types of stitches which could be used in the production of the jacket in (c). [7]

Answer could include:

- Machine stitches to join the different sections of the garment together: straight stitch, 4 threads overlock to join and neaten at the same time
- Machine stitches to neaten edges: zig-zag of different widths, different types of overlock
- Hem edges e.g. rolled hem by machine – zig-zig stitch or overlock stitch; utility stitches e.g. blind-hemming stitch to make an invisible hem on straight hems
- Lockstitch (machined); blind hems (hand or machine); tacking; top-stitching
- Buttonhole stitches for buttonholes
- Bar tack stitch to strengthen pockets
- Stitches used to attach buttons e.g. wide zig-zag
- Decorative stitches for embroidery: e.g. chain stitch machine or satin stitch; different machines used to produce these stitches
- Machine embroidery – satin stitches, linear or filled-in shapes
- Answer could include details of the stitch settings e.g. stitch width and stitch length; how the stitches are fastened off e.g. reversing or bar tack.

1 mark for each well-discussed point.

High band:

The answer will contain well informed comparison of a range of different types of stitches with detailed examples included. [5–7]

Middle band:

The answer will included some comparison of a range of stitches with some examples. Some examples which may have omissions. [3–4]

Low band:

The answer may include limited comparison of a few stitches although some points may be listed with no comparison. Few if any examples will be included. [0–1]

[Total: 25]