

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
GCE Advanced Subsidiary

## MARK SCHEME for the October/November 2008 question paper

### 9631 DESIGN AND TEXTILES

9631/01

Paper 1, maximum raw mark 75

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.

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.

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**Section A Answer both questions**

1 mark awarded for each well explained point.

**1 There is a wide variety of fabric construction types available.**

**(a) Explain how a latch needle works in the production of weft knitted fabric.**

Give credit for a correct sketch of the latch needle.

Answer could include:

yarn is positioned over the hook; rest of yarn is placed on needle behind hook; needle pulls backwards drawing yarn through loop, as latch closes; this forms the new loop;

give credit for labelled sketch;

1 mark awarded for each well explained point.

[4]

**(b) Explain using labelled diagrams, the differences in the structure of:**

**one named weft knitted fabric**

Answer could include: cotton jersey/polyester jersey/acrylic ribbing/etc;

**course loops:** interlock in weft direction on fabric (horizontal);

**wale loops:** interlock in warp direction on fabric (vertical);

loops interlock with each other, knitting is carried out in horizontal direction (like hand knitting) using one yarn;

give credit for sketch with correct labelling;

1 mark for each correct point.

[3]

**one named warp knitted fabric**

Answer could include: nylon tricot/polyester tricot/raschel jersey/etc;

course loops (horizontal);

wale loops (vertical);

loops interlock, but give a much less flexible structure, because loops are knitted vertically and one yarn is used per needle;

1 mark awarded for each well explained point.

[3]

**(c) Compare the performance characteristics of weft knitted fabrics with those of plain woven fabrics.**

Answer could include:

**mechanical properties such as:**

strength; resistance to abrasion; dimensional stability; stretch and recovery;

**properties relating to aesthetic factors:**

handle/drape, crease recovery, easy care properties; lustre etc;

**physical factors:**

thermal insulation, stiffness etc;

**properties important in garment production:**

sewability, dimensional stability; etc;

**special applications:**

flame retardance, waterproofness, resistance to acid/alkalis/solvents etc;

Comparison of both types of fabrics for each point, for example: weft knitted fabrics are very flexible and stretchy in all directions, whereas woven fabrics are much more stable and stretch slightly across the diagonal direction of the fabric (true cross);

1 mark awarded for each well-compared point.

[6]

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**(d) Discuss how the construction of fabrics affects the choice of end uses.**

Answer could include:

**construction of fabrics:**

woven fabrics are firm and stable; warp knitted fabrics are firm and stable; weft knitted fabrics are stretchy in all directions; give credit if a different fabric construction is given (lace, felted, bonded);

**end uses: garments such as:**

tops, skirts, trousers, nightwear, etc;

**home furnishings:**

cushions, curtains, etc.

**woven fabrics such as:**

cotton twill would be very suitable for a cushion cover for home use. The fabric is firm and is abrasion resistant; it is washable and irons easily; the fabric could have a stain resistant finish and could be treated with a flame proofing to comply with UK health and safety regulations. The fabric is strong and is stronger when wet, so laundering will not affect the fabric.

A knitted fabric such as cotton jersey, would be suitable for a T shirt. A garment needs to be comfortable and as T shirts are usually worn next to the skin, the knitted fabric will flex with the body as it moves.

Also credit: yarn construction e.g. type of twist, 's' or 'z', soft or firm  
type of fibre used

1 mark awarded for each well-compared point.

High band: 7–9 marks

Middle band: 3–6 marks

Low band: 0–2 marks

[9]

[Total: 25]

**2 Fibre types and structures are useful in the study of textiles.**

**(a) Explain the properties of:**

**(i) staple fibres**

Answer could include:

these are short fibres, either from natural fibres such as cotton, wool, flax, where the fibres grow to a specific length; staple fibres can also be cut from continuous fibres, from silk/polyester, etc

Also credit: short lengths of fibres can give more textured surface

1 mark for each appropriate point.

[2]

**(ii) continuous filament fibres**

Answer could include:

these are fibres of indefinite length, and can be natural (silk) or man-made such as nylon or polyester. The width/diameter of fibres can be determined during manufacture; these can also be cut into staple fibres if further processing is required (such as blending).

More lustrous finish to surface of fibre/fabric.

1 mark for each appropriate point.

[2]

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**(b) Compare the microscope view of the following fibres:**

**(i) wool**

Answer could include:

surface of fibres are covered in overlapping scales; the size and frequency of scales depends on variety and fineness of wool; cross section is usually oval/circular and can be of various diameters. Crimps along fibre;

labelled sketch of fibres to show above features.

[2]

**(ii) cotton**

Answer could include:

longitudinal section shows a flattened ribbon appearance with frequent twists, which reverse at intervals; cross section show a collapsed tube, almost bean-like; mercerised cotton shows round smooth fibres.

[2]

**(iii) polyester**

Answer could include:

Circular cross-section with a smooth surface. Delustrants can be added to the spinning solution which show up as dark speckled marks. Diameter of fibres can be changed.

Any other appropriate answer.

1 mark for each correct point.

[2]

**(c) Assess how the structure of the fibres in (b) may affect the use of fabrics made from them.**

Answer could include:

**Wool:** scales on surface may affect the wearability of wool fabrics; laundering fabrics – care needs to be taken to avoid felting.

Felt fabric can be produced for a non-woven type useful in industry;

Fine wool fibres made into wool fabric used for clothing;

Coarser wool fibres used for carpet making;

**Cotton:** fibre twists – long fine yarns can be produced due to ability of fibres being twisted together easily;

diameter of fibres: the finer the fibres, the finer the fabric, e.g., cotton lawn for clothing would be smooth and pleasant next to the skin; cotton percale would be very smooth for bedding;

collapsed tube of cotton fibres allows moisture to be absorbed easily;

absorption of moisture - fibre swells and is also stronger when wet.

**Polyester:** very smooth fibres absorb little moisture so make the fabric for clothing uncomfortable to wear. Fibres can be crimped to allow more moisture to be trapped between fibres; fibres can also be cut into staple and blended with other fibres such as cotton to improve comfort and absorbency;

diameter of fibres can be altered so that very strong monofilament fibres could be used for seat belts, or fine fibres could be used for clothing.

Any other appropriate answer.

High band: 5–7 marks

Middle band: 2–4

Low band: 0–1

1 mark for each appropriate point.

[7]

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**(d) Discuss the advantages and disadvantages of making non-woven fabrics, directly from fibres.**

Answer could include:

Quicker process from raw material to fabric as the yarn manufacturing is not needed;

Cost effective as continuous production method all in one place;

Blending: variety of fibres can be used for non-wovens, either on their own or by blending.

Thermoplastic fibres used so can be fused together easily to stabilise the fabric;

laundering can be easy although this will depend on the type of fabric produced;

non wovens can be modified to specific end uses;

Thickness can vary;

Stiffness due to method of fusing used, may not hang well for clothing; however, this can be changed depending on what the end use is to be;

they can be porous or impermeable, depending on the end-use;

strength can vary according to the type of fibres used, eg. polyester or nylon would give a very strong fabric if continuous filament fibres are used;

Surface friction: poor wear, fabrics often disposable;

wide variety of fabric textures can be produced, such as paper-like, or felt-like or like a woven fabric;

Variety: not such a wide range of fabrics available compared with woven fabrics;

any other appropriate point

High band: 5–7 marks

Middle band: 2–4

Low band: 0–1

1 mark for each well discussed point.

[8]

**[Total: 25]**

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**SECTION B Answer one question**

**3 The aesthetic qualities of design principles are carefully considered in the study of textiles.**

**(a) Briefly outline what is meant by pattern in the study of textile designs.**

Answer could include;

Pattern: an image is used many times over to produce a repeat suitable for a fabric; the fabric can be covered with a pattern or a pattern can be used on a section of the fabric. There are many types of pattern, such as symmetrical, asymmetrical; mirror-image; all-over pattern; regular pattern, etc. Can be applied to surface e.g. block/screen prints.

1 mark for each point.

[2]

**(b) Explain how the following can contribute to the designing of garments:**

Answer could include:

**line**

line can be used to draw the eye to a specific part of the body, e.g. vertical/horizontal lines; curved lines; crossing lines;

e.g. waistline in a dress could be emphasised by a belt; princess line seams could be used for drawing the eye vertically to make a garment look longer;

give credit for labelled sketches;

1 mark for each point.

[3]

**balance**

on a garment this could relate to look of the whole garment, e.g. balance of the bodice size and shape compared with the skirt; asymmetric neckline and similar hemline; pocket on one side of garment being balanced by a pocket on the opposite side; use of colour;

give credit for labelled sketches;

1 mark for each point.

[3]

**(c) Discuss how CAD can be used to develop textile designs.**

Answer could include:

Computer aided design: suggested software to be used e.g. photoshop/illustrator/coral draw etc;

original images/clip art images can be scanned;

software can be used to change the colour/size/shape/effects/rotation/etc;

scanning of image to modify design: specific size, crop or enlarge a specific part of the design, etc;

copy design and make repeated pattern;

save designs for future use;

superimpose more than one design to produce multiple design;

show design on image of item e.g. clothing or fabric (showing specific width on loom such as 90cm/115cm etc); saves paper, downloads directly onto fabric.

give credit for labelled sketches;

any other appropriate point

High band: 6–8 marks

Middle band: 3–5

Low band: 0–2

1 mark for each well discussed point.

[8]

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**(d) Assess the importance of cultural heritage in textile design.**

Answer could include:

- Arts of a specific group or people: needs to be specified;
- Historical factors/artefacts which could be used for textile designs;
- Historical textiles/museum study which may influence contemporary textile design;
- Colour/dyes which are significant/important to a culture;
- Meaning of symbols/symbolism which may be important to a culture;
- Fabrics which are important to culture e.g. natural fabrics such as silk/wool/etc;
- Specific designs which could be used in textile designs e.g. animals/plants which may be embroidered in a historical textile, but could be reproduced in contemporary textiles as a repeated printed pattern;
- Crafts/particular techniques relating to a culture which could be updated or modified e.g. batik (wax printing/dyeing to make images);
- Stitching which may be used and could be modified in contemporary textiles e.g. cross stitching would be too slow to reproduce in contemporary textiles but could be modified and stitched by machine;
- Fashion items which could be made using textiles which have been influenced by historical textiles;
- Specific materials which are associated with a particular culture e.g. beading used in Indian and African textiles;
- Gives inspiration/ideas/provides variety.

The answer could be related to one specific culture, or examples could be given from more than one culture. Cultural differences

Give credit for illustrations/labelled sketches.

Any other appropriate point

High band: 7–9 marks

Middle band: 3–6

Low band: 0–2

1 mark for each well discussed point.

[9]

**[Total: 25]**

OR

**4 Clothing manufacture involves many different processes.**

**(a) Explain what is meant by:**

**(i) batch production**

Answer could include:

- a method of production where a specific number of items is to be produced e.g. 500 T shirts. The production line may be organised so that a team of people are given specific jobs so that they can produce the T shirts in a short amount of time, but still to a good standard. The workers may do more than one process in the production of the item,
- any other relevant explanation;

1 mark for each well discussed point.

[2]

**(ii) mass production**

Answer could include:

- clothing is made on a continuous basis 24/7, where items such as skirts for school uniform, may be produced in huge quantities e.g. thousands at a time; workers may do one job only repeatedly such as sew side seams; this a fast method of production which relies on well trained workers who are fast and accurate.

1 mark for each well discussed point.

[2]

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**(b) Compare how fabrics are marked after cutting out on:**

**(i) a one-off item of clothing made at home**

Answer could include:

choice of methods available:

tailor tacking, where one balance mark at a time is transferred from paper pattern to fabric (double or single layer);

could also use tailors chalk to draw lines on fabric e.g., position of pocket;

alternatively, tracing wheel and dressmakers carbon paper could mark pleat lines/seam lines etc on wrong side of fabric;

also, water soluble pen could be used for details such as where machining on right side of fabric needs to be done;

**(ii) fifty identical garments made in industry**

hot notcher used at edge of fabric;

drill holes used in certain positions where something;

fluorescent marker which shows up under UV light;

details of how these are used;

accurate marking if computer software used.

comparison of both methods (one-off and industry)

1 mark for each well compared point.

[6]

**(c) Assess the choice of closures/fasteners available to the garment maker, at home and in a factory.**

Answer could include:

closures such as buttons/buttonholes; zips; hooks and eyes; hooks and bars; Velcro; ties; frogging/toggles; ball buttons/loops; press-studs; snap fasteners; lacing; etc.

discussion could include method of fastening; ease of application (industrial methods); speed/cost effective method;

any other appropriate point

High band: 5–7 marks

Middle band: 2–4

Low band: 0–1

1 mark for each well discussed point.

[7]

**d) Discuss the importance of the following finishing processes carried out by industrial manufacturers.**

**(i) pressing/steaming**

Answer could include:

pressing carried out during production of item, which saves time at end of process;

final pressing/steaming carried out after item is sewn together so that acceptable finish when customers receive goods;

industrial pressing equipment used: such as steam dolly/steam press/flat press/how used to achieve professional finish;



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**(ii) information labels.**

Answer could include:

country of origin; trade name/mark; fibre content; special fibre label (e.g. cotton mark); fabric finish symbol (e.g. Teflon); care symbols such as wash code/temperature of wash; iron symbol e.g. 2 dots warm (150 C); dry clean; bleaching; drying; agitation level (one or two bars); bar code may appear on label: useful for re-ordering items; model number of item (e.g. rain coat);

any other appropriate answer

High band: 6–8 marks

Middle band: 3–5

Low band: 0–2

1 mark for each well discussed point.

[8]

**[Total: 25]**