

CAMBRIDGE INTERNATIONAL EXAMINATIONS
GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2013 series

9631 DESIGN AND TEXTILES

9631/01 (Fibres, Fabrics and Design), maximum raw mark 75

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Section A

1 Silk and viscose are often used for fashion items.

(a) State the sources of: [2]

(i) silk

silk is an animal fibre and the continuous filament thread is obtained from the silkworm (bombyx mori); [1]

(ii) viscose.

viscose is a manufactured regenerated fibre and is made from wood pulp combined with chemicals such as caustic soda. [1]

(b) Explain the results you would expect to find, when carrying out the following tests on silk. [6]

(i) flammability test

when a flame touches silk fabric, it sizzles, runs into black beads (ash) which are crisp on cooling, [1]
and there is a strong smell of burning feathers [1]
there is a small amount of greyish smoke [1]

(ii) microscope test.

when looking under the microscope, the longitudinal section (LS) shows smooth straight fibres which may be slightly uneven [1]
the cross section (CS) shows irregular triangular shaped fibres [1]
Give credit for correctly labelled sketches of the above [1]

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(c) Discuss the reasons why viscose is used as a substitute for silk for fashion items. [8]

Answer could include:

viscose has a silk-like **handle** if the fabrics are made from continuous filament fibres; these fabrics are produced to copy the same fibres made in silk, and examples of these fabrics could include: viscose slub, viscose twill, viscose satin, etc.; viscose fabrics are **cheaper** than the equivalent silk fabrics; silk is expensive to produce due to more labour intensive production methods, the need for mulberry leaves (the food of the silkworms); hand methods used to wind silk filaments onto reels, etc.

viscose can be made into many different types of fabric, so is a very **versatile** fabric; different weights can be produced e.g. a lightweight georgette for scarves, a medium weight such as viscose slub for suiting and a heavy weight satin or jacquard for curtains or upholstery

silk is **absorbent** (11%) and viscose is even more so (13%) so even though both fabrics are **comfortable** to wear next to the skin, viscose is more readily available and usually cheaper so is often chosen over silk;

silk needs care when **laundering** due to its delicate and lightweight structure and viscose also needs care due to the possibility of being distorted when wet (it is weaker when wet); however, viscose is more easily machine washed so is easier to look after than silk; both viscose and silk **dye** readily although with different types of dye; they both take colour well, so viscose is a good alternative to silk if other factors are also considered; viscose **drapes** well, it is quite heavy compared with silk which is floaty and lightweight, so if a long dress/skirt/curtains are made from viscose, they can handle well and keep their drape in position

Appearance – viscose is lustrous and imitates silk (and the name 'artificial silk' comes from this)

ethical reasons – animal cruelty

any other relevant and well explained points

1 mark for each well discussed point

High band: 6–8 marks

Middle band: 3–5 marks

Low band: 0–2 marks

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- (d) Assess the performance characteristics of viscose fabrics constructed with three different weaves. [9]

Answer could include:

three different weaves could include: plain weave, twill weave and satin weave, or any variations of these (e.g. basket weave; or herringbone weave or satin-backed crepe); possible viscose fabrics: voile, crepe, crepe de chine, grosgrain, satin, foulard, brocade or any other suitable fabric.

Also accept High tenacity viscose or Modal or Lyocell (Tencel) are stronger than standard viscose;

performance characteristics of each weave, such as:

absorbency (13%);

strength (weaker when wet, and **resistance to abrasion** – not very durable);

drape and handle: viscose drapes well, handle is soft, not firm – tends to be floppy;

lustre: depends on whether the fibres are continuous filament (lustrous) or cut into staple (matt);

thermal insulation: viscose usually a cool fabric so used in summer months;

crease recovery and **elasticity** (not very elastic, therefore creases, but extends when wet so care needs to be taken when laundering);

laundering (washing; dry cleaning; bleaching; drying; ironing);

shrinkage: tendency to shrink;

snagging: more common in satin fabrics where there are many long floats on surface;

plain weave: maximum number of interlacings so the strongest of the weaves; some sheer fabrics constructed using plain weave;

twill weave: small floats on surface, may snag in wear;

satin weave: long floats on surface, give a very shiny appearance and silky handle but easily snagged; not very hardwearing; careful laundering/pressing needed to avoid damaging the shiny surface.

1 mark for each well discussed point. Answer must be related to three chosen weaves.

High band: 7–9 marks

Middle band: 4–6 marks

Low band: 0–3 marks

[Total: 25]

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2 There is a wide variety of woven fabrics available for fashion items.

(a) Name two plain weave fabrics which are often made from cotton fibres. [2]

answer could include:

calico, cambric, lawn, poplin, organdie, voile, cotton velveteen, muslin, gingham, sailcloth and corduroy
any other correct fabric
1 mark for each correct fabric.

(b) Discuss how the performance characteristics of one fabric from (a) can affect the choice of style of a fashion item. [5]

answer could include:

choice of one fabric:

such as, **cotton cambric**: fabric is **soft** and floppy (i.e. not firm) so would be good for a style of item which has gathers, as it would gather well. Pleats would not be so good because it would be difficult to keep the pleats in place.

The fabric **creases** easily during wear, so it may not be suitable for a style where an uncreased look e.g. for a shirt to be worn for work. In this case, it may be better to choose a fabric which has a small amount of polyester, which creases very little and will help the creases to drop out.

Cotton fabrics are usually very **hardwearing** so any long lasting classic style (which will not 'date' easily) will be suitable.

Comfort – (linked to **absorbency**) – pleasant to wear against the skin

Average **draping** quality so suitable choice for daywear clothing but will not hang well for long evening wear.

The fabric may have a loose weave or close weave; if the weave is loose, it will be more prone to **flammability** due to the air spaces between the fibres. The fabric may need to have a flame resistant finish if it is to be used for children's garments, or if the garment is to be worn near open fires.

Laundering: bleaching may not be suitable if the fabric is dyed; hand or machine wash will be suitable.

If other fabrics are chosen, the same performance characteristics and reference needs to be made to the weight/weave/drape/handle etc.

Any other appropriate point

1 mark for each well discussed point.

High band: 4–5 marks

Middle band: 2–3 marks

Low band: 0–1 marks

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(c) Using sectional diagrams, show how the following weaves are constructed: [9]

(i) **satin weave**

answer could include:

position of warp threads (vertical);
 position of weft threads (horizontal);
 number of interlacings of each: normally weft thread goes under one warp thread, and over 4 or more warp threads, repeated.
 Different colours of yarn can be used to produce variations and specific weaves.
 Labelled diagrams to show the above.
 1 mark for each correct point

(ii) **dobby weave**

answer could include:

position of warp threads;
 position of weft threads;
 small figured design is usual in the weave e.g. small square, or geometric flower, etc.
 Different colours of yarns can be used, often in small groups (e.g. 24 threads) and this may be used for the small design.
 Special attachment is used on the loom.
 Labelled diagram to show above
 1 mark for each correct point

(iii) **jacquard weave.**

answer could include:

position of warp threads;
 position of weft threads;
 large woven designs (e.g. circles, swirls, etc.) produced by each warp thread being moved independently to produce any kind of weave e.g. plain, twill, satin and variations
 Different colours of warp yarns can be used to give further variations; many floating threads on surface so may affect wear of fabric;
 Cards (computerised) used to indicate pattern;
 Expensive process;

Labelled diagram to show above
 1 mark for each correct point

High band: 7–9 marks
 Middle band: 4–6 marks
 Low band: 0–3 marks

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- (d) Assess the factors which need to be considered when deciding whether to choose woven fabrics or knitted fabrics for outdoor clothing. [9]

answer could include:

purpose of outdoor clothing

Target market;

woven fabrics:

firm, often not much stretch unless cut on bias or elasticated thread has been added in the weaving process; keep their shape; windproof and weather proof; can be produced in a weave which is waterproof; very durable;

knitted fabrics:

stretchy and can be elastic; lots of air spaces so very absorbent; warmer due to air pockets; comfort due to movement of loops to fit body; fabrics are lightweight; allow wind to blow through so not good where protection is required e.g. outdoor wear;

Laundering – care needed to reduce distortion, and sometimes ironing not required due to creases dropping out.

Durability: knitted fabrics snag easily and may ladder or make holes due to loop structure; types of outdoor clothing: raincoats, waterproof trousers; rain hats; walking shoes made from waterproof fabrics (e.g. Gore-tex).

Accept relevant labelled diagram to show points above
1 mark for each well discussed, correct point

High band: 7–9 marks

Middle band: 4–6 marks

Low band: 0–3 marks

[Total: 25]

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Section B

3 Good design is important for the visual appeal of textile items.

- (a) Explain what is meant by good functional design. [2]

answer could include:

design of the item is 'fit for the purpose' and does what it says it will do.
The item may have a 'good design' mark in which it looks good as well as being fit for the purpose.
Item may have good proportions/interesting use of colour and/or texture;
1 mark for each point.

- (b) (i) Produce a labelled sketch of a design for a textile hanging which incorporates the use of fabrics with interesting textures. [4]

answer could include:

labelled sketch showing the following: size, shape, variety of textured fabrics/accessories e.g. beads/ribbon/feathers etc.;
colour indicated;
how hanging will fasten to the wall/hanging place (*do not accept wooden or other hard frame*);
special design features e.g. pockets or other decorative features;
1 mark for each well labelled point;

- (ii) Explain how the design will be interpreted using textile processes. [4]

answer could include:

explanation of a variety of textile processes
e.g. applique, by hand or machine;
patchwork using a variety of different textured fabrics;
processes to produce a texture e.g. gathering; ruching; shirring (elastic);
embroidery stitches (hand or machine worked); e.g. hand smocking;
free machining to produce different textures;
how fastening is attached e.g. hanging loops or ribbons;
how the item will be finished e.g. edges machined using a plain seam;
use of fabrics e.g. velvet; seersucker;
use of textures e.g. ribbon may be pleated in flower shape/used for applique/decorated with beads and applied on surface, etc.; threads of varying texture/thickness may be used for stitching or to couch on the surface (by hand or machine);
accept labelled sketches;
1 mark for each well explained point

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(c) **Justify your choice of fabrics, texture and textile processes.** [6]

answer could include:

answer will reflect the choices made in the previous section;

fabrics: used for specific colour/easy to sew/hardwearing/will not deteriorate if exposed to sun if near window; may not crease badly so will not require ironing;

texture: choices of texture will depend on the design chosen for the wall hanging; e.g. seersucker may give bumpy texture; choice of stitches e.g. French knots can produce a textured surface;

textile processes: may be easy to stitch by machine; a technique learnt on the A Level course;

may produce a specific texture which relates well to the design chosen;

1 mark for each justified point; must relate to the design and choices in earlier part of the question;

(d) **Assess how the study of historical and cultural heritage can help to develop design ideas for textile items. Refer to specific examples in your answer.** [9]

answer could include:

historical heritage: can apply to local artefacts; collections in museums; objects which may or may not be textile related; items of textiles whether for home use or personal use; jewellery/etc.

cultural heritage: can apply to local skills; local materials used to produce arts and crafts; local groups of people in the community who produce specific types of arts and crafts/etc.

design ideas for textiles: this can be for the overall shape of items to wear or use in the home; design ideas can be used to decorate the surface of clothing and other items;

specific items can relate to: items made in the A Level course; items sketched when researching design ideas; examples of items such as: tops; dresses; bags; hangings; containers; bed coverings;

can relate to the **colours** used;

can relate to the **contrast** of positive/negative shape; dark/light; plain/patterned; etc.

may also be non textile related e.g. designs in architecture; designs in nature; etc.

Credit relevant labelled sketches

1 mark for each well discussed point

High band: 7–9 marks

Middle band: 4–6 marks

Low band: 0–3 marks

[Total: 25]

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4 There are several ways of manufacturing clothing items.

(a) Outline the following methods of clothing production: [4]

(i) batch production

a specific number of items is produced by a team of people who often have specific jobs in the team; garment pieces are cut, and arranged according to the order in which they will be sewn; a new batch can be produced if more orders come in or if a different colour way is ordered; efficient for small numbers of items to be produced because no waste and usually made to order;

1 mark for each point [up to 2]

(ii) mass production.

a large number of identical items are produced continuously (24/7) and the workers have specific jobs on the team, often they make the same process over and over again; the process is very fast and efficient; machinery is used efficiently; labour is used efficiently;

1 mark for each point [up to 2]

(b) Suggest the most appropriate production method for making white t-shirts, giving reasons for your choice. [4]

Production method: batch or mass production

White t-shirts are a 'basic' classic item and are sold in large numbers; manufacturers may purchase these for dyeing different colours/or adding other decorations and embellishments such as applique or for screen printing;

method is cost effective and efficient;

method is very fast;

finished items are readily available;

any other relevant point

1 mark for each well discussed point [up to 4]

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- (c) Discuss the factors which the clothing manufacturer would consider when choosing the most appropriate methods of seams (joins) for different items of clothing. [8]

Answer could include:

types of **joining methods**: seams such as plain (using different methods of neatening the raw edges e.g. overlocking, zig-zag, binding, etc.);
overlocked flat seams, e.g. cover stitch (looks similar on both sides);
overlocking stitches (variety of) used for stretchy fabrics;

types of **fabrics**: e.g. stretch fabrics will need a seam where stitches can move with the fabric and not get damaged;

types of **clothing** e.g. sports wear (joins will need to be flexible; may be decorative);
fashion items for women (e.g. sheer fabrics may be used which need to be narrow);
fashion items for men (e.g. may need invisible/inconspicuous joins on suits)
outdoor clothing (e.g. may require waterproof seams for rainwear)

other seams (**joining methods**) such as: insertion of piping/tape/lace/braid in the seam;
current fashion e.g. seams showing on outside of garments
costs of processes;
equipment available;
workforce (and their skills) available;

any other appropriate point
1 mark for each point

High band: 6–8 marks
Middle band: 3–5 marks
Low band: 0–2 marks

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- (d) Assess the variety of pressing and finishing methods available to the clothing manufacturer. [9]

Answer could include:

pressing equipment available – how they are used to best effect when making up garments e.g. press seams after stitching and before next process is carried out;
 special treatment of processes e.g. pleats – creases put in; pockets (welt/patch – may be stitched up to keep them flat; trousers may have creases put in;
 threads are removed from different parts of the garments e.g. buttons and buttonholes;
 labels stitched into garment;
 final pressing: large steam irons are used, often with blowers to direct the steam;
 garments can be placed on dummies which have holes to allow hot steam to blow through, to remove creases;
 garments are placed on hangers and are covered with plastic bags, ready for despatch;
 1 mark for each well discussed point

High band: 7–9 marks

Middle band: 4–6 marks

Low band: 0–3 marks

[Total: 25]