

MARK SCHEME for the October/November 2012 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.

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

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Section A

1 It is important to choose suitable fabrics for workwear.

- (a) State four reasons why fabrics chosen for workwear need to be suitable for different types of work.

Answer could include:

Safety at work – jobs may need special protective clothing to keep worker safe (e.g. fire officers may need fire proof clothing);

Job may involve health and hygiene so fabrics need to be strong and durable so they can be long lasting if cleaned regularly e.g. food workers need clean clothing to avoid contamination of food;

Regulations – some jobs may have specific clothing e.g. uniforms for police who can only wear this uniform if suitably trained;

Office workers may need to look smart all the time so would need non-creasing fabrics e.g. polyester suits;

Fit for purpose; comfort;

Climate;

Colour;

Any other appropriate point.

1 mark for each well explained point.

[4]

- (b) (i) Sketch a design for a pair of overalls for a named occupation.

Answer could include:

sketch must relate to the named occupation; front and/or back view could be shown; uniform could be unisex or for a specific worker; main design features to be shown e.g. seam lines, special safety features, appropriate colour for type of work chosen, etc.

1 mark for each well sketched/labelled point.

1 mark only if no labels.

No mark if occupation is not named.

[3]

- (ii) Give details of six fabric specification points, for the overalls in (b)(i).

The specific points need to relate to the fabric in (b).

The following points could be included:

Type of fibre content to be used e.g. 100% cotton, including whether it is to be a blend e.g. 35% cotton, and 65% polyester;

Type of construction – if weaving, which weave? If knitting, which type? etc.

Colour of fabric – exact colour needs to be given especially if a large quantity of the item needs to be made; does the fabric need to be dyed? If so, which type of dye?

Care of the fabric – needs to have care instructions so that the item can be kept in good condition during use.

Which fabric finish needs to be applied? For example, bleaching, shrink resistance, stiffening, etc. Should this be applied at the fabric stage? Or finished garment stage?

Smart fabrics.

Do any special finishes need to be applied? For example, if the fabric needs to be fire proofed, which chemical needs to be used?

Does the fabric need to be tested before making up, to make sure it is durable/suitable for the workwear?

How wide is the fabric? It may be more economical to have a wider fabric (e.g. 150cm) in order to reduce wastage of fabric.

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Strength;
Absorbency;
Costs (must be explained);
Any other appropriate point.
1 mark for each well explained point.

[6]

(iii) Name two suitable named fabrics;

Answer will depend on type of work chosen but would probably need to be hardwearing and durable e.g. cotton drill; cotton twill; cotton polyester gabardine; polyester canvas; etc.

1 mark for each correctly named fabric – must relate to the chosen occupation.

Full marks for fibre plus structure for each fabric.

[2]

(iv) Describe two appropriate fabric performance finishes.

Answer needs to relate to the chosen occupation and could include:
crease resistance; flame resistance; stain resistance; anti-pilling; anti-mildew; etc.

1 mark for each correct finish.

[2]

(c) Assess the importance of the fabric specification points chosen in (b)(i) for the overalls.

Answer could include:

The points listed will need to relate to the type of work and fabric chosen earlier in the question.

The points given in **(c)** need to be in some order of priority; each point needs to be justified; e.g., if the overalls are for a worker in the car or oil industry, the fabric chosen could be dark coloured cotton drill. This would show the dirt less. Cotton is very hardwearing so the fabric chosen (cotton drill) would be durable. There may be a risk of fire in the place of occupation so the fabric would need a fire retardant finish, especially as cotton is flammable.

1 mark for each well explained point, which needs to relate to the points given in **(c)**.

Production – must be suitable.

High band: 6–8 marks

Middle band: 3–5 marks

Low band: 0–2 marks

[8]

[Total: 25]

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2 Creative techniques can involve the use of yarns or fabrics.

(a) Give three reasons why creative techniques are used on textile items.

Much variety of decorative work available;
 Personal preference – some consumers prefer creative techniques;
 What is the current fashion – consumers want to stay up to date with current trends;
 Influences from different cultures – some consumers like to have particular styles of creative techniques on their items e.g. Indian decoration;
 Decorated items often cost more so a 'status symbol'?
 Create pattern/texture;
 Special occasion;
 Original/unique items available if produced by a small workshop;
 Match colour scheme;
 Any other appropriate points.
 1 mark for each well described point.

[3]

(b) Sketch and label two bags which use yarns and free machining in a creative way.

Answer could include:

Front/back view of two bags; use of yarns to be labelled; use of free machining to be labelled; yarns could include: textured yarns; knitting yarn; different coloured yarns; different thicknesses of yarns; fibre content e.g. silk yarns will have more shine/lustre; stranded cotton yarns can use the same colour of thread in different number of strands to give variety;
 Free machining: drop the teeth on the sewing machine and put fabric tightly into an embroidery hoop; this will enable the fabric in the hoop to be moved freely and not be restricted to straight lines; curved and flowing lines are possible when the hoop is moved;
 types of bags: bags for shopping; evening bags; bags for special occasions; bags for children to use; utility bags e.g. for keeping sports kit, etc.
 Any other appropriate point;
 1 mark for each well labelled point.

[4]

(c) Discuss the points which need to be considered before working the free machining on one of the bag designs in (b).

Answer could include:

How to prepare fabric for machining;
 Level of skill of workers;
 How to prepare the sewing machine e.g. drop feed dog (teeth) on the sewing machine;
 Thread colour; type of thread;
 Set the machine stitch to straight stitch (or zig-zag) and put stitch length to zero;
 How to prepare the fabric – equipment needed e.g. embroidery hoop needed, special free machining/darning foot needed on sewing machine;
 How to mark the design on the fabric e.g. use chalk or tacking or special fabric marker, etc.;
 At which stage should the free machining be worked? Before the fabric is cut out (this may be easier if the pieces for the bag are very small, as they may not fit inside the embroidery hoop);
 Which part of the design to start stitching first e.g. start from the centre and work outwards.
 1 mark for each well discussed point.

[6]

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- (d) **Assess the range of materials available for working creative techniques. Discuss their use on textile items.**

Answer could include:

Fibres: loose wool tops can be blended by hand and attached onto the surface of fabric, machined in place using straight stitch, zig-zag, automatic stitches or free machining; fibres can be attached by hand, using hand embroidery stitches e.g. chain stitch, seeding, etc.; an embellisher machine can be used to push the loose fibres into the fabric to produce a felt like surface;

Yarns: knitting yarn, embroidery thread, sewing thread, string and twine can be used to stitch with, or to couch onto the surface (i.e. lay on surface of fabric and attach using a different thread); hand sew, or machine sew onto the background fabric.

Textiles: a wide variety of fabrics can be cut out and arranged onto the fabric to produce 3D effects (raised surfaces); this could be specific techniques such as mola work or applique, where fabrics are applied in layers or in a single layer, to produce pattern and texture;

Trimmings: ribbons, lace, fringing, tape, braid etc. can be arranged into the fabric or along edges, to produce different creative patterns and surfaces.

Objects: additional items such as shells, buttons, beads, sequins, etc. can be attached by hand to produce textured effects on fabric.

Fabric with texture.

Any other relevant point.

Give credit to fabric names.

Give credit for labelled sketches.

1 mark for each well explained point.

High band: 9–12 marks

Middle band: 4–8 marks

Low band: 0–3 marks

[12]

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Section B

3 Decorative embroidery techniques are used for special gifts.

- (a) Sketch a design for a special textile gift for someone using hand embroidery technique(s). Label the design features, and include details of the technique chosen.

Answer could include:

Special textile gift could be an item of clothing e.g. wall panel for a child; a box covered in fabric which could be given as a special birthday present; an accessory such as scarf or hat or bag; a textile book cover for a book, or any other gift, which can be made from textiles (although other materials could be incorporated into the item).

Labelled sketches showing the main design features of the item.

Design could be based on themes from nature (e.g. leaves, flowers, etc.), man-made themes e.g. architecture, repeated geometric patterns, etc.;

Hand embroidery stitches – there is a wide variety to choose from e.g. chain stitch, stem stitch, cross stitch, seeding, French knots, blanket stitch, bullion knots, fly stitch, etc.

Imaginative use of the stitches to produce the design in the sketch.

1 mark for each well described/sketched point.

[5]

- (b) (i) Write a detailed product specification for the item.

Answer could include:

Size of item (for amount of fabric);

Fabric – type (including fibre content and name e.g. cotton canvas), amount and width;

Colour of fabric and how colour has been applied (e.g. dyed, printed etc.);

Threads – machine threads to sew item together (e.g. 100% cotton machine thread, colour to match fabric);

Embroidery threads – fibre content, thickness, colour, trade name if appropriate (e.g. Anchor stranded), how much needed;

Interfacing/lining or stiffening needed – details of type, weight, width, etc.;

Any other relevant point.

1 mark for each well explained point.

[5]

- (ii) Explain the reasons for your choice of materials to make the item.

Answer could include:

Fabric choice: strength, special finish for item (e.g. shiny, striped, special texture, etc.);

Colour choice: to fit in with the chosen theme, e.g. if item is a wedding gift, white, red or gold may be the traditional colours;

Threads: may be chosen for strength or elasticity (e.g. polyester has both these qualities);

Embroidery threads: may be chosen for variety of thicknesses e.g. stranded cotton can be used as one strand or up to six strands;

Interfacing etc may be used to stiffen the back of the fabric, or lining may be used to cover the back of the embroidery or other relevant reasons;

Any other relevant point related to choice of specification in (b)(i).

1 mark for each well explained point.

Any 5 relevant points must give reasons.

[5]

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(c) Compare the following methods of production for the item designed in (a):

(i) a sample item;

Answer could include:

One-off production so it is likely an experienced production worker would make this sample, or a team of people would make the item, based on individual skills and item being produced.

May take longer to produce due to new item and order of production may have to be modified for efficiency.

Changes may need to be made to the design in case some parts are not easy to produce.

The item will be expensive to produce as it is likely that special fabric needs to be ordered to make the item.

The design specification may need to be changed in light of any changes to the design.

Special machines may need to be used and the production manager may need to see the best time to make the sample item, depending on what else the company is making at the time.

Any other relevant points.

1 mark for each well explained point.

(ii) a batch of fifty items with decorative embroidery produced by machine.

Answer could include:

Production manager will need to plan in advance (e.g. staffing/machines) and know what the deadline is for the completed batch.

Staff may need training and the production manager may need to organise this before the production starts.

The final design specification will have been prepared after the sample item has been made/tried out.

The company will have pre-ordered the materials required so these should be in stock when the production is ready to start.

The cost of each item will be much less than the sample item made due to materials being bought in bulk.

Any other relevant point.

1 mark for each well discussed/compared point.

High band: 8–10 marks

Middle band: 4–7 marks

Low band: 0–3 marks

[10]

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4 Environmental factors need to be considered when designing textile products.

(a) (i) Outline the principles of dry cleaning.

Answer could include:

Solvent used in large enclosed drum (not water)

Solvent dissolves grease which is in the fabric and dirt sticks to this grease; if the grease is removed, the dirt is removed with it.

The solvent is recycled and the item is aired to make sure no solvent remains; the item is then pressed as normal.

Can be used on special finishes.

1 mark for each correct point.

[3]

(ii) Explain why it is necessary to have a range of different dry cleaning care symbols for garments.

Answer could include:

Useful for consumers;

Knowledge of the different dry cleaning symbols:

Circle with A inside (any solvent suitable so suitable for all fabric types);

Circle with P inside (perchloroethylene and fluorohydrocarbons can be used on some fabrics – things like acetate may be sensitive to some chemicals);

Circle with F inside (only some solvents can be used i.e. limitations e.g. fluorohydrocarbons and white spirit, used for sensitive articles which might be damaged by certain solvents);

Circle with bar underneath (minimum agitation);

Circle with cross through it, do not dry clean.

1 mark for each point.

[5]

(b) Assess ways in which trimmings from recycled textile items could be used in an interesting way for cushions. Illustrate your answer.

Answer could include:

Trimmings could include a wide range of: lace, ribbon, braid, bias binding, etc.

Cushions could be a variety of shapes and styles: bolster, rectangular, square, round, novelty shapes (e.g. shape of an apple), etc.

Ways in which the recycled trimmings could be used: use the trimmings along edges/to make a design on one side of cushion.

Use several trimmings together in bands.

Dye the trimmings to match the background fabric, then use on cushion.

Unused fabrics after cutting out items.

Dnpick/unravel parts of the trimmings before using on cushion.

Any other appropriate point.

Include detailed labelled sketches.

1 mark for each well labelled point.

High band: 8–10 marks

Middle band: 4–7 marks

Low band: 0–3 marks

[10]

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(c) Discuss the importance of personal judgement when evaluating textile products.

Answer could include:

Appropriate criteria: would include:

A detailed design specification for the item – to make sure the item produced is according to the design.

Fabric specification – so that the manufacturer is able to order and use the correct fabric – consumers will buy the item if it is fit for purpose.

Any other points which are relevant to the design specification.

Personal judgment:

Need to make sure the right people (e.g. consumers, designers) are consulted during the design and making of the garment.

One's own personal opinion may not be the same as the wider public.

Market research is very important in the research process.

Money could be lost by the business if appropriate market research/consultation has not been done.

Consultation/opinions need to be sought at different stages of the designing/making process; e.g. initial design stages, once sample(s) have been made and tried out; feedback may be needed once the items are for sale in shops (e.g. re-ordering of popular items).

Ethical points – opting for 'greener' textiles.

Any other appropriate points.

1 mark for each well discussed point.

High band: 6–7 marks

Middle band: 3–5 marks

Low band: 0–2 marks

[7]

[Total: 25]

5 Trousers have continued to be a popular item of clothing.

(a) Design two different trouser designs for teenagers which incorporate the use of decorative closures (fastenings). Label the style features.

Answer could include:

Types of trousers: smart full length for workwear/schoolwear; casual baggy styles with/without pockets/tabs etc.; cropped styles for holiday wear; jeans with hip pockets and rivets at the seams.

Styles of trousers: slim fit; bootleg; wide leg; classic; low waisted; high waisted; etc.

Two different types of trousers to be chosen.

Style features could include: waist finish (e.g. waistband, facing, decorative, tie belt, etc.).pockets (e.g. hip pockets, patch pockets, in seam pockets, etc.).

Fastenings: (zips, buttons, poppers, hooks, ties, Velcro, etc.).

Decoration on the trousers e.g. embroidery motifs, 'worn' areas on jeans, etc.

Any other relevant style features.

1 mark for each well labelled/sketched point.

[4]

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(b) Write eight product specification points for one of the garments in (a).

Answer could include:

- Colour of fabric and how colour is applied e.g. colour woven or dyed, etc.
 - Type of fabric (e.g. name, fibre content, width, weight, amount, etc.);
 - Type of fastening(s) and details (e.g. zip, buttons, Velcro etc.; details to include: size/length/width, amount, what made from, etc.);
 - Thread to be used to sew together: e.g. fibre content, how much needed, colour, thickness etc.;
 - Details of pockets: are these bought in as components or made in-house; pocket lining details; top stitching; etc.
 - Stitch details: e.g. type of stitch(es) such as straight, overlock, buttonhole etc.;
 - Surface decoration details if used, including top stitching;
 - Seam allowance width and tolerance;
- any other relevant point.
1 mark for each well explained point.

High band: 6–8 marks

Middle band: 3–5 marks

Low band: 0–2 marks

[8]

(c) Explain why it is important for a manufacturer of garments, to have a detailed manufacturing specification for the design in (b) before production.

Answer could include:

- Detailed prototype before production;
 - Accurate costs (no waste);
 - Correct colour/type of fabric need to be ordered in advance;
 - Need to plan how many workers are needed to produce the items;
 - Need to know whether special machines are needed e.g. embroidery;
 - May need to train staff for special processes;
 - Detail of stitches/tolerances needed so that all items produced are identical;
 - Needs to make sure the items made are good quality and according to the specification to keep up the reputation of the business;
- Any other relevant point.
1 mark for each well explained point.

[6]

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(d) Discuss why some textiles are less affected by physical wear (e.g. snagging and pilling) than others.

Answer could include:

- Physical wear includes holes in the fabric, dyes which fade, ladders in knitted fabric, pilling on the surface of the fabric, yarns and fibres plucked or snagged from the main body of the fabric, etc.
- Fabrics are constructed in different ways and in general, fabrics which are woven have a tighter and firmer construction with threads close together, which reduces the likelihood of threads being pulled out. Fabrics like cotton twill/cotton denim have threads which are close together and with the diagonal effect of the weave, makes the right side much more compact. It is difficult to pull threads out from this type of surface.
- It is possible to see the threads in plain weave fabrics (e.g. cotton/polyester cambric), and if the fabric is loosely woven, these threads may get caught and snagged.
- Plain weave fabrics which have loose constructions e.g. cotton muslin or nylon organza, have a very loose weave and it is possible to see through the fabric due to the spaces. Threads can get caught very easily and pulled out.
Once the fabric is damaged, it is very difficult to mend the damage without it being seen, so the garment is likely to be discarded.
- Pilling on the fabric occurs when loose fibre ends rub together during wear or laundering and make small balls on the surface. With weak fibres such as wool or some types of cotton, these pills can be removed. With very strong fibres such as polyester, it is not possible to remove them so the fabric feels rough and looks worn. It is at this stage that the item is discarded.
- Knitted fabrics have a very loose looped structure which is very easily snagged, causing a pull, which becomes a ladder due to the stitches un-looping.
- Fabric finishes added to reduce wear.

Any other relevant point.

1 mark for each well explained point.

High band: 6–8 marks

Middle band: 3–5 marks

Low band: 0–2 marks

[7]

[Total: 25]