



**General Certificate of Secondary Education  
June 2011**

**Design and Technology: 45701  
Textiles**

**(Specification 4570)**

**Unit 1: Written Paper**

**Final**

***Mark Scheme***

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Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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**1(a) Marks awarded as follows:**

No answer worthy of credit 0 marks

1 mark each for any relevant point.

- Be a sustainable product
- Include one or more decorative textile techniques
- Appeal to art gallery visitors/target market
- Budget/price point
- Must include handle/fastening
- Give security for valuables
- Colour

**(2 marks)**

- 1(b) (i) Two sketches to show different initial ideas for product. Candidates are not to be penalised if they do not use pencil.**  
Sustainable materials such as recycled and reclaimed fabrics and components, biodegradable materials, organic cotton, linen and sustainably grown fibres eg bamboo. Fabrics dyed with natural dyes. Fair trade materials. Materials manufactured using renewable energy.

**Marks awarded as follows:**

No answer worthy of credit 0 marks

Weak unimaginative idea, poorly presented. Little or no detail shown of sustainable fabrics, components and techniques, or idea may have little appeal to consumers. Little reference to theme. May have little or no annotation to explain thinking. 1 – 2 marks each

A design that will appeal to the target market and that is inspired by the theme of the Art Deco. Sustainable fabrics, components and techniques will be evident. Candidate will communicate ideas. Idea is fairly well presented with some annotation to explain thinking.

3 – 5 marks each

A quality design that is highly creative and original, exciting use of pattern/motif or interesting shape/style. Inspiration taken from the theme of Art Deco.

Thoughtfully selected sustainable fabrics, components and techniques will be included. Will appeal to those shopping for a souvenir from art Deco exhibition. Candidate will communicate ideas very clearly with excellent presentation and annotation to explain thinking. 6 – 7 marks each

Design should be neat and clear for full marks. If both ideas are similar, mark first as it stands; alter second (1 -4 marks instead of 7).

**(2 x 7 marks)**

- 1(b) (ii)** Will appeal to art gallery visitors who wish to buy sustainable products, one or more decorative or construction techniques, or product will promote the Art Deco exhibition, will have a label to state sustainable product. Art Deco inspired images/colours/shapes used, natural dyes used, features fabrics and components that are inspired by theme. Product is an original, creative design. Aesthetic appeal. Useful features eg pockets, straps etc. Offers good value to the consumer. Is fashionable. Will appeal to a wide target audience.

**Marks awarded as follows:**

No answer worthy of credit 0 marks

2 different reasons, 1 mark each.

**(2 marks)**

- 1(c)** Final design to include:  
**Use of Art Deco theme.**

**Marks awarded as follows:**

No answer worthy of credit 0 marks

Little relevance to theme or it is used inappropriately. An existing design may have been copied. 1 mark

Thoughtful and/or imaginative use of theme which is totally appropriate for product. It is strongly influenced by the Art Deco theme and this can be seen in the product style, shape, components and decoration. Little evidence that an existing design has been copied.

2 marks

**(2 marks)**

**Originality and quality of the design, including decorative techniques**

The following should be considered:

Contemporary, creative, original and imaginative design, balanced composition/effective use of space, effective proportions, appropriate for intended use, will the design work?

Use of decorative techniques and components that are in keeping with the fabrics selected and theme.

**Marks awarded as follows:**

No answer worthy of credit 0 marks

Unimaginative design with some thought given to intended end use though lack of detail. Relates to some areas of design brief but may not be clear, overall balance weak. Techniques added as an afterthought.

1 mark

Good design related to all aspects of design brief with clear detail about product. Design might lack some imagination but is likely to be popular. There may be some lack of clarity about materials and decorative techniques.

2 - 3 marks

Product will be highly creative and original and likely to sell well to the target market. Design clearly relates to all aspects of design brief. High quality and very imaginative design for product. 4-5 marks

**(5 marks)**

**Effective use of colour in bag design**

This is not about colouring in of the design idea. The following should be considered:

How has colour been used? Are the colours toning, contrasting, complementary? Will the colour be appreciated by and acceptable to the target market.

Do they work for the product? Do they promote the Art Deco theme?

**Marks awarded as follows:**

No answer worthy of credit 0 marks

Use of colour is immature and not used to effect. 1 mark

Choice is used well but does not make product exciting. 2 marks

Used effectively/imaginatively, mature and sensitive choice. The design has been presented in full colour. 3 marks

**(3 marks)**

**Use of appropriate sustainable fabrics and components**

Sustainable materials such as recycled and reclaimed fabrics and components, biodegradable materials, organic cotton, linen and sustainably grown fibres eg bamboo, Tencel. Fabrics dyed with natural dyes. Fair trade/ethical materials. Materials manufactured using renewable energy. No to just cotton/silk unless they include a reason why it is considered sustainable.

**Marks awarded as follows:**

No answer worthy of credit. If just a list of materials and components of which none are sustainable then 0 mark.

0 marks

One or two **sustainable fabrics or components** are included in the design, but in a very straightforward manner or inappropriate and that has limited effectiveness. 1 mark

One or more **sustainable fabrics or components** used to good effect, some may be inventive but inappropriate.

2 marks

Selective use of sustainable materials/methods used to excellent effect/very imaginative/suitable for sustainable production; annotation may be added to explain. 3 marks

**(3 marks)**

**Presentation**

**Marks awarded as follows:**

No answer worthy of credit 0 marks

Lack of care in presenting work, candidate will not communicate detailed information about product. 1 mark

Candidate has taken care with presentation, quality of drawing and labelling and information about product is clear. At least 2 views are needed for a full mark. Some side/gusset views are outstanding and should be allowed. 2 marks

**(2 marks)**

**1 (d)**

**Marks awarded as follows:**

The key word is 'design'. How can the design be changed?

No answer worthy of credit 0 marks

Simplification of style, design features, decorative techniques or less variety of materials.

Use of CAM to replace hand techniques eg embroidery, printing

Use of printing the design as opposed to hand worked techniques e.g.

applique. Could remove some of the decorative techniques or components without spoiling the design.

Not accepting sub assembly, costing, change of size, cheaper fabrics.

1 mark for any point, up to 2 marks or 1 mark + 1 mark for expansion of a point. 2 marks

**(2 marks)**

**2 (a) (i) Marks awarded as follows:**

No answer worthy of credit  
No to waterproof.

0 marks

- Non absorbent/takes water away from the body/has moisture management properties/wicks water away from next to the skin so that it is more comfortable. Do not accept absorbent.
- Lightweight/thin so that athlete is not weighed down by clothing
- Smooth so it does not irritate and more aerodynamic
- Washable so that perspiration can be easily removed
- Durable so that it can be worn during competitions or regular training
- Comfortable/cool to wear so that athlete can focus on running/doesn't overheat
- Be stretchy/tight fitting/retain shape so that the athlete can run fast with ease of movement/tight fit to body/aerodynamic.
- Strong so does not rip
- Breathable so athlete can keep cool
- Anti static
- Anti chaffing
- Reference to fibre content e.g. lycra, elastane.

1 mark for each specification bullet point and 1 mark for each correct explanation. (2 marks)

3 points with 3 correct explanations

3 x 2 marks

**(6 marks)**

- 2 (a) (ii) Marks awarded as follows**  
Key word is 'fibre'.  
No answer worthy of credit 0 marks  
Absorbent, creases easily, retains moisture, takes a long time to dry  
Can shrink when washed, is not stretchy.  
No to heavy, breathable or to anything related to construction  
2 different reasons, 1 mark each **(2 marks)**
- 2 (b) (i) Marks awarded as follows**  
No answer worthy of credit 0 marks  
A Woven (accept twill weave)  
B non-woven felted/needle punched/bonded  
C – knitted (accept warp knit)  
If the answer includes the word weave or knit give a mark even if the name of the weave or knit is wrong.  
1 mark each correct answer **(3 marks)**
- 2 (b) (ii) Marks awarded as follows**  
No answer worthy of credit 0 marks  
**Only correct answer - C** - Knitted **(1 mark)**  
1 mark
- 2 (b) (iii) Marks awarded as follows**  
No answer worthy of credit 0 marks  
Knitted fabric has a high elasticity and stretch, can keep its shape, no or few seams needed, breathable  
Do not accept strong.  
If the candidate chooses A for 2 (b) (ii), and then gives a relevant reason in 2 (b) (iii) e.g. 'elastane is woven in to add elasticity,' then mark A wrong but give 1 mark for 2 (b) (iii).  
1 mark for any correct point  
up to two marks  
2 marks for 1 point + expansion **(2 marks)**
- 2 (c) (i) Marks awarded as follows**  
No answer worthy of credit 0 marks  
Finishing processes can be physical/mechanical, chemical, biological or coating applied to surface, e.g. teflon, scotch guard, sympatex.  
Water repellent silicone, stain resistant resin. Microfibre fabric, Nanotechnology. The microporous structure of the GORE-TEX® membrane is what makes GORE-TEX® fabrics completely waterproof, it is a synthetic laminated fabric. Tactel, Fastskin. Do not accept smart, elastane, polyester. If described but not named only award 1 mark.  
**1 mark for a named fabric or named finish or a description of a fabric.**  
**2 marks for a named fabric or named finish and description of fabric to give more detail.**  
**(2 marks)**
- 2 (c) (ii) Marks awarded as follows**  
No answer worthy of credit 0 marks  
Silicone finish – water droplets remain on fabric surface, stains and water can be wiped off.  
Stain resistant resins – prevents dirt from clinging to surface.  
Nanotechnology – very fine fibres – water droplets too large to go through fabric  
and particles of dirt can be repelled

Microfibre – very fine fibres which are non-absorbent  
Laminated – microporous membrane – water droplets too large to go through fabric.  
Permeable – lets the water evaporate out but prevents the rain going in

**1 mark for very simple explanation.**

**2 marks for more detail – mark positively. This is a hard question to answer. Marks can still be given for correct information about water or stain resistant fabric if 2 (c) (i) is incorrect.**

**(2 marks)**

**3 (a) (i) Marks awarded as follows:**

No answer worthy of credit 0 marks

Any printing method – block, screen, roller, stencil, heat printing, laser and bubble jet, transfer, sublimation, digital.

Not tie-dye, batik

**(1 mark)**

**3 (a) (ii)** If a different method of printing is described – not the one given in answer to 3(a) (i), mark as seen but only up to 5 marks.

If a different method of applying colour is described, not a printing method, only up to 4 marks.

6 marks will be given for

**List of equipment needed**

No answer worthy of credit 0 marks

More than 1 item such as print paste/ fabric paint with block or screen etc

(1 mark)

**(1 mark)**

**Step-by-step instructions**

No answer worthy of credit 0 marks

Explanation is confused or method very basic. 1 mark

Explanation of method is adequate and would mostly work. This candidate has a good grasp of the method of printing. 2 marks

Accurate explanation of method of printing including use of correct materials and equipment. Candidate understands method and can clearly explain it.

3 marks

**(3 marks)**

**Quality of notes and sketches**

No answer worthy of credit 0 marks

Basic detail, simple diagrams, few steps. 1 mark

Detailed diagrams with clear labels, neat presentation, 2 marks

**(2 marks)**

**3 (b)** Marks awarded as follows:

No answer worthy of credit 0 marks

Drawing software can be used to design, illustrate and show working drawings. Drawn lines and shapes or photographic images can be imported and edited, or scanned to manipulate and develop ideas. Collections with a range of coordinating products can be developed from one initial idea. Can reuse past designs, modify them, email them to get feedback from customer.

With some specialist software it is possible to get a 3-D impression of the design, by rotating the design and seeing it from different viewpoints. The designer can use the computer to simulate draping and shadowing to create a realistic image of the design. Also, ideas for different colourways can be tested and a variety of print, knit or weave fabric designs can be trialled on screen, to see the effect of each different combination of colour and texture.

Printed fabric designs developed on screen can be digitally printed onto actual fabric for sampling or full runs.

Embroidered motifs and patterns can be designed on the computer and then stitched directly onto fabric.

Many CAM machines are linked to CAD programmes and designs can be made directly from design instructions. Textile products made using computerised machinery are often made more efficiently, and increase consistency and accuracy. Time can be saved and modifications made more easily. Production can be closely monitored for quality and safety, and costs reduced due to efficiency. Health and safety of workers can be monitored and working conditions made safer using computers. It is environmentally friendly because not using paper for changes.

Efficiency factors- easier, quicker, consistency, accuracy, cost effective.

Simple statements, candidate will tend to concentrate superficially on only a few ideas and offers little information, many aspects will be ignored. Little connection made between use of computer and how computers aid designing/manufacturing. Response is structured poorly with little or no use of Design and Technology terminology and with numerous errors in grammar, punctuation and spelling.

1-2 marks

More detailed information with example(s). This candidate has some understanding of how computers can benefit designing/manufacturing, at a basic level or may have more detailed understanding of a few examples. Response is fairly well structured with some use of Design and Technology terminology and with a small number of errors in grammar, punctuation and spelling.

3-4 marks

Sound understanding of a variety of examples with detailed information. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling

5-6 marks

Excellent understanding of a variety of examples with accurate and detailed information. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling. If bullet points are used to structure answer, then full, detailed sentences must be employed.

7- 8 marks

**3 (b)**

Higher level candidates will link CAD to CAM in an explained, informed way. Lower achieving will give general points related to computers. Try to pick out relevant points and award some marks.

No marks for any points related to 'manufacture' e.g. lay planning, cutting, stitching.. No marks for comments related to research.

**(8 marks)**

**4 (a) (i) Marks awarded as follows:**

No answer worthy of credit

0 marks

A line drawing of a garment drawn to scale to give clear visual information to show what the garment looks like. Can be used to check made garments against, is a visual record of garment style and size.

Not about manufacturing specifications in general.

If they answer 'a labelled final design' then award 1 mark. Is not a picture or photograph.

1 mark

**(1 mark)**

**4 (a) (ii) Marks awarded as follows:**

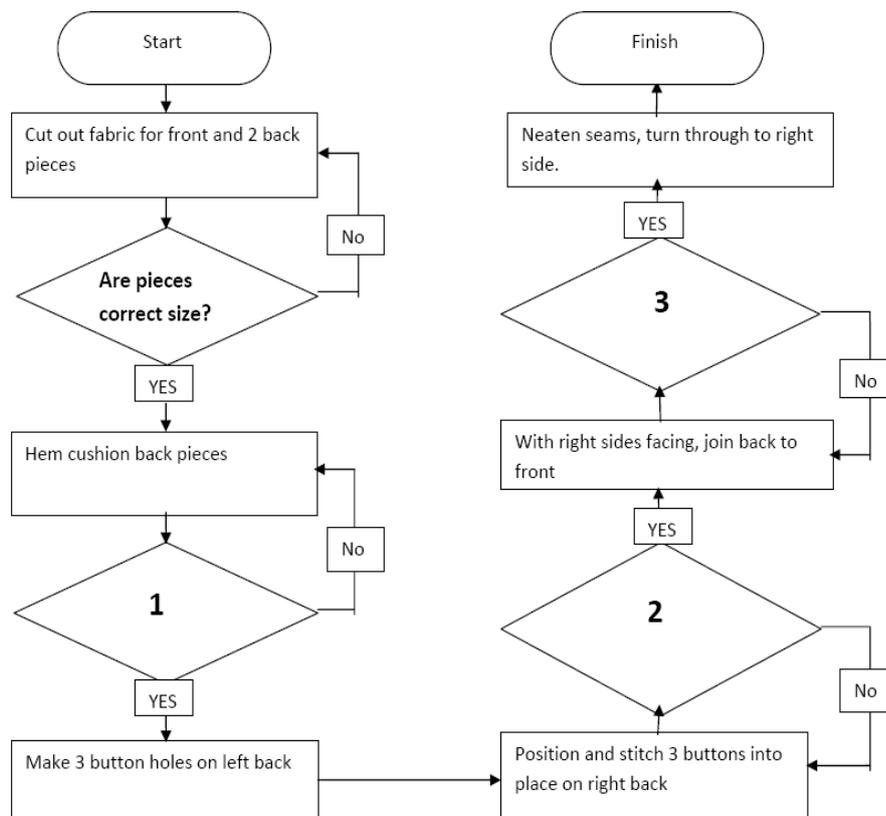
No answer worthy of credit 0 marks  
 A working drawing shows the size/measurements/dimensions of a garment, different viewpoints can be shown, seams, darts, stitch lines, pocket positions, fastenings, components, decorative techniques etc.  
 No to fabric, colour, tolerance, deadline dates, flow charts and costs.

1 mark for each correct and different point up to 3 marks.  
 Not about manufacturing specifications in general.

3 marks

**(3 marks)**

**4 (b) (i)**



**Marks awarded as follows:**

No answer worthy of credit 0 marks  
 Empty box 1: Is the stitching straight? Hem correct size? Stitches correct length? Measurements accurate, neat and secure. No to 'done properly'.  
 Any correct answer 1 mark

Empty box 2: Are buttons in correct position to fasten? Are buttons stitched on securely? Buttonhole correct size for buttons.  
 Any correct answer 1 mark

Empty box 3: Do back and front match up? Is seam allowance correct size? Is the stitching straight? Stitches correct length? Are right sides facing? Joined correctly and neatly. **(3 marks)**  
 Any correct answer 1 mark

**4 (b) (ii) Marks awarded as follows:**

No answer worthy of credit

0 marks

So that order of making is logical, to monitor quality of made pieces, to help meet schedules/deadlines, to give simple step by step instructions, to simply/clearly communicate instructions for making, so all the pieces are made in the same way. It ensures good quality of made products. It indicates when sub assembly is feeding in. No full marks if they simply repeat the same reasons but using different words.

**(3 marks)**

1 mark for each different correct reason up to 3 marks.

**4 (c) Marks awarded as follows:**

No answer worthy of credit

0 marks

Small components are attached to individual sections in a separate operation from the main product, or smaller parts are joined together separately, then the separate made section is added to the main product.

**1 mark for basic understanding**

**2 marks for detailed explanation, or eg provided to help explain**

**(2 marks)**

**4 (d) Marks awarded as follows:**

No answer worthy of credit

0 marks

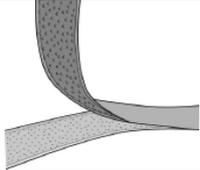
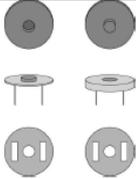
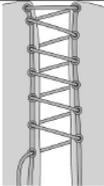
Pinking shears used to cut raw edges, turn in and hem edges, bind edges, overlock, machine stitch using zig zag stitch.

Not a type of seam ie not flat fell or French seam. These could be an appropriate seam for the fabric but they are not methods of neatening.

**(2 marks)**

1 mark for each correct method up to 2 marks.

5 (a)

Type of fastening	Advantage	Disadvantage
 <input type="text" value="Zip"/>		
 <input type="text" value="Velcro/hook and loop"/>		Velcro hooks can get full of fluff and stop working/ Too bulky for fine fabric.
 <input type="text"/>		Can easily undo/Only suitable for medium weight fabrics/heavy weight of stud.
	Decorative and gives a design feature	

(5 marks)

No answer worthy of credit

0 marks

5 a  
Ctd

1 mark for each correct answer in box, as above, up to 5 marks.

Velcro – can get full of fluff and stop working – can lack aesthetic appeal – can snag other fabrics – too bulky for fine fabric.

Do not accept – not secure (unless worn out in time/fluff factor mentioned).

Accept – irritating on skin.

Magnetic studs – can easily undo – studs heavy so only suitable for heavy/medium weight fabrics – come off easily and difficult to replace – the magnet can attract other objects.

Lacing – also accept easy to untie, strong method, adjustable sizing, secure, fashionable, decorative and gives a design feature..

5 (b)

**Marks awarded as follows:**

No answer worthy of credit

0 marks

Decorative components, trimmings, interfacing, shoulder pads, thread, label, seam binding tape, ribbon, binding, cords, lace trims, beads, sequins, pre-manufactured motifs, rivets, boning, elastic, handles and straps.

Any 3 points - 1 mark each.

(3 marks)

Do not accept pocket. Do not accept logo – without further explanation. No to other fastenings and no to decoration unless they give an example.

**5 (c) (i) Marks awarded as follows:**

No answer worthy of credit

0 marks

Any named or described electronic device that can be embedded into fabric or incorporated into clothing for sensing, monitoring, detecting, tracking, charging batteries, use of internet, medical monitoring, LEDs, lights, GPS, communication or entertainment purposes. No to smart fabrics.

One electronic component/device simply named or described in a particular textile product.

1 mark

One electronic component/device simply named or described with more detail provided to explain how this is incorporated into the particular product and what function it has, or 2 different ones simply named or described.

2 marks

More than one electronic component/device named or described with more detail provided to explain how these are incorporated into particular products and what function they have

3 marks

**(3 marks)**

**5 (c) (ii)** The key word is 'value'. Environmentally friendly (solar powered), improves safety, interactive, gives impact, improve the quality of life for some disabled, entertaining/fun, access to internet, communication, makes product more desirable/modern/novelty value.

No answer worthy of credit

0 marks

Candidate explains what the electronic technology adds to the textile product. Candidate might have only basic understanding and may be confused.

(1 mark)

Candidate explains briefly what one or more uses of electronic technology can be used for and why this might be useful/appealing to the user.

(2 - 3 marks)

Candidate explains in detail what electronic technology can be used for and why this might be useful/appealing to the user and adds value to the clothing. More than one example will be given.

(4-5 marks)

**(5 marks)**

**6 (a) (i) Marks awarded as follows:**

No answer worthy of credit

0 marks

Cruel to animals, animals have rights, some people are against hunting animals, some animal fur may be from endangered species, environmental issues – interruption of food chain, farmed animal fur might be acceptable to some people.

1 mark for each correct point up to 3 marks or 3 marks for expansion of one point.

**(3 marks)**

**6 (a) (ii) Marks awarded as follows:**

No answer worthy of credit

0 marks

Fake fur, fur fabric, faux fur, Microfibre fake fur.

Do not accept just a named fibre type eg polyester, without a name or description of fabric type. Not fleece.

**(1 mark)**

(1 mark)

**6 (b) (i) Marks awarded as follows:**

No answer worthy of credit

0 marks

Consists of several items – boots, trousers, top with hood, gloves - covers most of body

Shape/style – large size, baggy/large hood, long top overlaps long trousers –, layers trap body heat/insulates against the cold/protects against wind chill.

Fabric – thick fabric, wool, animal skin/fur - traps body heat/insulates against the cold/protects against wind chill/hardwearing. Not durable/last a long time.

Dark colour absorbs sunlight and increases warmth.

If they say thick clothing with no explanation only 1 mark

If they give the same reason for each piece of clothing e.g. hood gives warmth, coat is warm, boots give warmth then only 1 mark

1 mark for identification or description of aspect that is suitable for cold weather, 2 marks if reason is given such as insulation.

Up to 2 marks for each different reason. 2x3 marks

**(6 marks)**

**6 (b) (ii) Marks awarded as follows:**

No answer worthy of credit

0 marks

Over large hood, long top over trousers, patterns - stripes and dots, brown/cream colour tones, pompoms trim, fabrics, fastenings, pockets, shape and style, fringing, trim round leg cuffs/hood opening.

Use of naturally patterned/coloured fibres/fabric without need of dyes.

Information about how it is made. Properties of fabric with explanation.

If they list one word answers only e.g. decoration, materials and construction then only 1 mark for all 3 words.

**(3 marks)**

Any 3 points 1 mark each or 2 points with expansion, as candidate may describe a particular new product

3 marks.

**7 (a)**

No answer worthy of credit

0 marks

Ear defenders to protect his hearing from being damaged by the continual noise of weaving loom/machinery.

1 mark for each correct point.

1 mark

Face mask to prevent him from inhaling fibres/dust/fumes from the yarns/weaving loom/machinery.

No answer worthy of credit

0 marks

1 mark for each correct point.

(1 mark)

**(2 marks)**

**7 (b)**

No answer worthy of credit

0 marks

The dangers, hazards or risks involved in making a product are identified, described and listed in a document as part of health and safety regulations.

Assessing the risk or danger. 0 mark if answer 'checking machines'. If answer 'looking for dangers' only 1 mark.

Basic understanding may be unclear or confused.

1 mark

Clearly understands what is meant and may give an example.

2 marks

**(2 marks)**

**7 (c) (i) Marks awarded as follows:**

No answer worthy of credit

0 marks

Finger and hand injuries from sharp needles and blades. Stitching fingers. Eye injuries from broken needles thrown up in air. Trailing wires. Over heating machines/ fire risks. Pulled hair/clothing/jewellery from thread or fabric feed. High noise level may damage hearing. Seating may cause back injuries. Electrocutation. Inhalation of textile dust.

**(3 marks)**

1 mark for each correct point.

**7 (c) (ii) Marks awarded as follows:**

No answer worthy of credit

0 marks

Finger guards. Thimble used. Eye shields/goggles. Long hair tied up. Remove all loose clothing or jewellery. Seats adjusted for correct posture. Training. Tidy/organised work area. Wires vertical to ceiling. Power stop buttons. 'Sharps' boxes. No drinks. Warning signs. Adequate lighting, ventilation. Regular machine checks. Regular staff breaks.

**(2 marks)**

Not wear gloves.

Any 2 correct points 1 mark each.

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