DTBase©

Design & Technology
Eduqas GCSE

Textiles: factors influencing selection

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- For the multiple choice questions, circle your answer

Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don’t spend too much time on one question

Good luck!

Q1. Which finish uses wire brushes to raise the surface fibres for a soft, warm, fluffy feel?

A Calendering

B Brushing

C Glazing

Q2. What does mercerising do to cotton?

A Makes it shinier, stronger and better at taking dye

B Makes it waterproof

C Stops moths eating it

Q3. Which finish makes wool unpalatable to moth larvae?

A Moth proofing

B Anti-static finish

C Shrink resistance

Q4. How is wool made shrink resistant?

A It is coated with wax

B It is coated with silicones

C A chlorine treatment smooths the fibre scales so they do not lock together

Q5. Proban is an example of which type of finish?

A Stain resistance

B Flame retardant

C Crease resistance

Q6. How is a fabric made windproof?

A By coating it with PVA

B By brushing it

C By a very close weave of densely woven microfibres

Q7. Calendering is a finishing process that increases the lustre and aesthetic qualities of a fabric. Describe the process of calendering as a finishing technique. **(2 marks)**

Q8. A kitchen apron is made from a woven twill cotton fabric. Explain one reason for applying a fireproofing treatment to the kitchen apron. **(2 marks)**

Q9. A uniform worn by nurses in hospitals is made from a woven cotton fabric. Give two different chemical surface finishes or treatments that could be applied to the uniform to help with its aftercare. For each one, explain one advantage of using it. **(6 marks)**

Q10. The cotton fabric used for an apron is dyed. Explain two negative effects on the environment of dyeing cotton. **(4 marks)**

Q11. A high fashion t-shirt is manufactured in an economically developing country. Analyse how a designer can ensure the t-shirt is produced in an ethical and environmentally friendly way. **(5 marks)**

Q12. Discuss ways designers can extend the life of textile products to lessen their impact on our environment. **(6 marks)**

Q13. Kitchen aprons are manufactured in Europe and transported worldwide. Information about the aprons: scale of production is mass; material is woven twill cotton fabric; material source is cotton farms in India, China, Pakistan and the USA; sizes are XS, S, M, L and XL; surface finish is a fireproof coating. Analyse this information. Evaluate the kitchen aprons with reference to their social footprint, including: trend forecasting; the impact of farming on communities; the ease and difficulty of recycling and disposal. **(9 marks)**

Answers

Q1. B
Q2. A
Q3. A
Q4. C
Q5. B
Q6. C

Q7.

Any two points (1 mark each). For example:

- The fabric is folded (face sides together) and stitched together (1)
- The fabric is run through rollers under pressure (1); the rollers are heated (1)
- The pressure and heat polish the surface of the fabric (1)
- The fabric runs through a cooling roller after the calender unit (1)

Q8.

A reason (1) and a linked justification (1). For example:

- It will stop the apron catching fire (1), protecting the wearer from burns (1)
- The apron can be taken off and used as a fire blanket (1) to smother a fire or stop it spreading (1)

Q9.

Two chemical finishes (1 mark each), each with two linked justifications (1) + (1). Do not accept non-chemical finishes. For example:

- Easy care (crease resistant) finish (1), which reduces the ironing needed (1), which is good as the uniform is laundered often (1)
- Mercerising (1), so the surface of the fabric is flatter and more even (1), so it creases less and looks more presentable (1)
- Stain resistant finish or coating (1), so it repels stains (1) and the uniform is not as dirty and unhygienic (1)
- Shrink resistant finish (1), so the fabric is pre-shrunk before the garment is made (1) and the uniform stays the same size through frequent washing (1)

Q10.

Two negative effects (1 mark each), each with a linked justification (1 mark each). For example:

- Dyes contain hazardous chemicals (1), which can harm humans, plants, animals and soil (1)
- More demand on water supplies (1), because of the rinsing and washing of fabrics (1)
- Rivers can be polluted (1) if dyes are released or leak into water systems (1)
- More energy and finite resources are used (1), as dyeing adds extra processing (1)

Q11. (5 marks)

Environmental considerations

- Use fabric that is recyclable or biodegradable (e.g. cotton without elastane), or fabric that has already been recycled
- Use organic cotton grown without chemical pesticides and fertilisers; use natural or non-toxic dyes
- Reduce processing, e.g. avoid bleaching or mercerising with caustic chemicals
- Dispose of waste correctly and safely; use factories powered by renewable energy
- Use lay planning to reduce wasted fabric
- Manufacture locally, or grow, process and make in the same country, to cut transport and pollution
- Reduce packaging or make it recyclable
- Make sure the t-shirt meets the target market's needs so it is not thrown away; make it well so it lasts
- Carry out a Life Cycle Analysis; design with a circular economy approach

Ethical considerations

- Respect local culture and practices
- Protect the health and wellbeing of workers, from farmers to machinists
- Fair pay, acceptable hours with breaks, well ventilated and healthy workplaces, contracts with regular income

- No child labour or exploitation; Fairtrade so no producer is disadvantaged; ethically sourced raw materials

However

- Organic cotton, natural dyes and fair wages increase the selling price
- High fashion garments go out of fashion quickly and are thrown away whatever they cost
- Buyers of fast fashion often have little money and put fashion before ethics and the environment
- Exploitation will continue unless consumers insist on buying Fairtrade products

Band	Marks	Descriptor
3	4 to 5	A coherent answer with detailed, relevant knowledge and understanding of how a designer can ensure the t-shirt is produced ethically and in an environmentally friendly way. Relevant examples and a well-developed, logical chain of reasoning, sustained throughout.
2	2 to 3	Some coherence, with partial knowledge and understanding. Mostly relevant examples and a logical chain of reasoning that may not be sustained throughout.
1	1	Basic knowledge and understanding. Limited relevant examples or logical chain of reasoning.
0	0	Incorrect or irrelevant answers.

Q12. (6 marks)

Indicative content:

- Design less fashion led, stylish clothes that do not follow trends, or with an iconic style so they can be stored and worn again
- Fewer fashion seasons (there can be up to 14 a year), which encourage a throwaway culture
- Improve the quality of raw materials and construction so clothes last longer
- Design clothes that can be repaired, including spare buttons and matching thread; market “make do and mend” as fashionable
- Design clothes that fit many body shapes and sizes
- Make clothes easy to care for (not dry clean only), with clear care labels that also encourage recycling, reuse and repair

- Use sustainable fabrics (e.g. bamboo) and organic fibres; use natural dyes or dyeing that needs no water
- Use finishes that extend the life and keep the appearance of clothes
- Design and make clothes from old or upcycled clothing
- Manufacture locally, use greener energy and Fairtrade suppliers; encourage social media to promote sustainable clothing; educate about the 6Rs

However

- Natural fabrics biodegrade but still take many years to do so
- Social media promotes high fashion, and it is hard to change people's opinions on following trends
- Natural fibres are grown with pesticides and fertilisers that are toxic to ecosystems, and need a lot of water to process
- Synthetics use fossil fuels but need little processing, water and energy, and are durable and long lasting

Band	Marks	Descriptor
3	5 to 6	A coherent answer with detailed, relevant knowledge and understanding of how designers can extend the life of textile products to lessen the impact on our environment. Relevant examples and well-developed, substantiated judgements in a logically structured response.
2	3 to 4	Some coherence, with partial knowledge and understanding. Mostly relevant examples and partly substantiated judgements in a generally well-structured response.
1	1 to 2	Basic knowledge and understanding. Limited relevant examples or judgements, with little structure.
0	0	Incorrect or irrelevant answers.

Q13. (9 marks)

Indicative content:

- Not really a fashion item, so unlikely to be affected by trends
- Demand worldwide is hard to measure and meet
- Demand for cotton may mean it has to be harvested from other regions or countries
- Land used for cotton farming causes problems for local communities: land use, soil fertility, local habitats and pesticide use

- Risk of child labour, exploitation and low, unfair wages; consider using ethically sourced cotton
- High volume farming and long transport distances bring pollution to local communities
- Pure cotton fabric is easier to recycle, as other materials do not have to be separated first
- Short lengths of fibre left over from making the twill can be used for other things
- The fireproof coating makes the fibres harder to recycle

Marks	Descriptor
7 to 9	Interrogates and breaks down the information with sustained connections and logical chains of reasoning. A well-balanced appraisal, with judgements showing a thorough awareness of how the factors interrelate or compete. A conclusion fully supported by relevant judgements.
4 to 6	Interrogates and breaks down the information with some connections and logical chains of reasoning. A balanced appraisal, with judgements showing awareness of how the factors interrelate or compete. A conclusion partially supported by relevant judgements.
1 to 3	Attempts to interrogate and break down the information, but connections and reasoning are flawed. An unbalanced appraisal with limited awareness of how the factors interrelate. Any conclusion is likely to be a general assertion rather than supported by judgements.
0	No rewardable content.