

2006 Fashion & Textile Technology

Advanced Higher

Finalised Marking Instructions

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Instructions to markers

General Instructions

Each question is marked out of 25. Markers should use the full range of marks available as indicated in the mark descriptors for an A, B and C response at the top of each question.

Candidates should be awarded according to the quality of thought revealed in their answers. They should not be rewarded solely, or even mainly, according to the quantity of knowledge conveyed. In progression from Higher a more advanced grasp of the skills of analysis, synthesis and interpretation is required. Credit will be awarded according to the degree of success with which the candidate:

- Gives an answer which is relevant to the question and is explicitly related to the terms of the question
- Is able to make the various distinctions required by the question
- Responds to all the elements in the question in a coherent manner
- Applies knowledge and explains, analyses, discusses rather than simply stating facts
- Develops the skills of analysis and evaluation through critical appraisal

Section A

(a) Outline the main issues in the report.

Mark allocation: 5 marks

A – 4 – 5 marks

The candidate is able to clearly outline all the main issues in the report.

B – 3 marks

The candidate is able to list most of the main issues in the report.

C – 2 marks

The candidate is able to list some of the main issues in the report.

Answers should make reference to the following points:

- future fabrics will have high performance
- modern technology in fabrics giving high performance as well as them being ‘as light as a feather’
- nanosphere fabrics and stain resistance
- climate management and Airvantage systems for adjustable insulation
- high visibility for workwear requiring operators to be seen. Use of HiLite
- lighter protection, giving fire retardant finish to lighter fabrics so usable in shirts and more comfortable
- antimicrobial finish to fight against bacteria and to prevent odours
- antimicrobial fabrics play important role – hygiene, prevention of bacterial growth in hospitals
- antimicrobial sales to surge, fastest growing of all new textiles technologies
- creation of technically and economically feasible products/fabrics
- megatech fabric – heavy weight used for fire-fighting and working with chemicals
- new lightweight fabrics for application to shirts – fire retardant and also made from traditional fibre cotton, so able to keep cool
- hygiene products of the future, self cleaning for use by the consumer and also hospitals
- modern performance fabrics can be used in a wide variety of areas
- products that will be strongest in the future are those that cause little or no harm to the consumer or the environment.

5 marks

(b) Discuss the benefits of these and other textile developments to the consumer.

Mark allocation: 10 marks

A – 8 – 10 marks

The candidate is able to develop a full and coherent discussion of the benefits of these and other textile developments to the consumer. The discussion will show good analysis of the influences identified with full explanation.

B – 6 – 7 marks

The candidate is able to develop a discussion of the benefits of these and other textile developments to the consumer. The points will be supported with some explanation.

C – 4 – 5 marks

The candidate is able to identify the benefits of these and other textile developments to the consumer. Some of the points will be supported with limited explanation.

Answers should make reference to the following points:

- breathable membranes, useful for clothing for outdoor pursuits and sports activities
- breathable membranes allow the wearer to stay dry as they are relatively waterproof and also allow perspiration to escape allowing the wearer to remain dry
- microfibrils used in outerwear – showerproof coats, also in underwear and clothing, cleaning clothes
- microfibrils, allows fabrics to be very soft, can be waterproof due to closeness of weave, are easy to care for
- use of elastane in sportswear and in day wear
- elastane improves the ‘recovery’ of a fabric and can be used in formal day wear. It can also improve performance when used in sportswear
- wicking/moisture transportation. Used in sportswear
- wicking allows the wearer to stay dry with a double layer of fibres – one that ‘wicks’ water away from the skin onto an outer layer where it quickly evaporates
- thermally regulate, useful for outdoor pursuits and occupations
- fleece fabric can be made windproof, can also have ‘wicking’ properties and can be produced in a variety of weights
- UV protection, allows the wearer to have a limited protection from the harmful rays of the sun
- UV protection clothing is used for outdoor workers and for children’s wear
- wearable electronics, where clothing can contain the ‘wireless’ power required to allow the wearer to use mobile phones, computers, personal stereos and other digital pieces of equipment
- clothing to contain a conductive textile network allowing the wearer to have their own Personal Area Network, which means that they can use their clothing like their PC at home or in the office
- fabric sensors to provide GPS (Global Positioning System), status on wearer’s health, ability to contact emergency forces if required
- in sportswear tops that contain memory cards that monitor heart rate, respiratory rate and thermal activity, allowing the wearer to monitor progress and health

- nanosphere or nanotextile finish; preventing staining. ‘Non-stick’ textiles
- ‘soft shells’; air-permeable, light, hardwearing and wind resistant stretch fabric constructions. A High level of ‘next-to-skin’ comfort, perfect skin shape retention. They are ultra light, efficient, warming and constructed all-in-one fabric
- climate management; thermal climate management system for clothing. Developed by W L Gore. Airvantage’s membrane system is a construction of permanently airtight and breathable chambers. Used for sportswear, particularly snow wear. Other examples of other companies may also be noted with examples as well eg Patagonia – improved fleece material with “eco” forms or North Face/Malden Mills – polyester fleece with conductive heating fibres – called the METS Jacket or the Nike ACG Commvest designed in collaboration with SoftSwitch – a ski vest jacket used by ski patrols who need to communicate in adverse weather conditions which includes built-in microphones with removable speakers
- W L Gore – high visibility clothing, luminous fibres now individually coated to allow laundering and prevention of a build-up of grime, which ‘greys’ the fabric rendering it useless
- Megatec-K fabric is used as a fire and chemical retardancy in lightweight fabric suitable for shirts, previously only available in heavyweight fabrics. Now soft and comfortable
- shape-memory: can be waterproof, windproof and breathable at the same time. The material can remember and retain its ‘shape’, or return to its previous form. Able to sense changes in the surrounding environment, evaluate them intelligently, and control its responses to ensure highest level of comfort.
- antimicrobial fabrics. Can ‘eat’ odours. Prevention of bacteria spreading and fabric is treated.

10 Marks

(c) Critically discuss how the fashion and clothing industry have responded to technological advancements.

Mark allocation: 10 marks

A – 8 – 10 marks

The candidate is able to critically comment on how the fashion and clothing industry have responded to technological advancements as they have arisen, giving full analysis of each point raised.

B – 6 – 7 marks

The candidate is able to critically comment on how the fashion and clothing industry have responded to technological advancements as they have arisen, giving some analysis of each point raised.

C – 4 – 5 marks

The candidate is able to critically comment on how the fashion and clothing industry have responded to technological advancements as they have arisen, giving limited analysis of each point raised.

Answers should reference to the following points:

Fabric Development

- The expectations of the modern consumer to demand more sophisticated and innovative textile products.
- Development of new threads, interlinings and machinery and other associated products in order to be able to produce garments that are functional.
- Lifestyle of the modern day demands more freedom and functionality from our clothing.
- Modern fabrics allow us to develop fashionable clothes with function, eg elastane will allow the wearer to bend and stretch without restriction or discomfort.
- Allows the designer greater freedom in their choices of fabrics and allows for experimentation.

Construction Methods

- As new textiles have developed, the need to consider the construction methods has had to be evaluated.
- To identify the correct thread type, needle type, feed mechanism, lubricants and any special attachments that may be required.
- With the evolution of new fabrics, machinery manufacturers are continually developing new products to assist in easing the sewing process.

Components and Trims

- As new fabrics have developed components have had to evolve in order to provide the same properties as the fabrics.

Machinery Developments

- The use of microprocessor controlled sewing machinery to assist in the reduction of response times.
- With a simple microprocessor control box attached to the machine we can now programme the number of stitches required, the format of the back tack, the position of the needle, thread trimming functions, automatic presser foot lift and the speed of the machine.
- This provides the flexibility to allow the machinist to quickly and easily adjust her/his machine to suit the operation they must complete.
- The flexibility of adjusting the needle position.
- Many of the time consuming elements that are involved in turning the handwheel to position the needle, lifting the presser foot etc, have been eliminated.
- More flexibility in the ranges of products manufactured.

Computers

- **CAD (Computer Aided Design)** is the term used for a computer system for the aid of the design and product development processes.

CAD covers the following areas:

- textile design
- fashion design
- pattern cutting
- 3D simulation – textiles, garments
- body scanning
- grading
- marker planning

- **CAM (Computer Aided Manufacture)** is the term used for computers which aid the manufacture process.

CAM covers the following areas:

- marker planning
- spreading
- cutting
- sewing
- pressing
- transportation

- **Information Technology Transfer**, use of and sharing of electronic data from a variety of sources. This will allow a company to be responsive to all the influencing factors that will affect their manufacture.

Areas covered are:

- Internet
- Intranet
- Modems
- PC Packages
- CAD
- CAM
- EPOS
- PDM
- Web PDM eg Gerber

10 Marks

Total 25 marks

Section B

1 (a) Discuss the information which should be provided by a design specification for the manufacture of a winter jacket.

Mark allocation: 10 marks

A – 8 – 10 marks

The candidate will be able to list and discuss almost all of the information required for the design specification. The discussion will show good analysis of the specification with full explanation.

B – 6 – 7 marks

The candidate will be able to list and discuss more than half of the information required for the design specification. The discussion will show analysis of the specification with explanation.

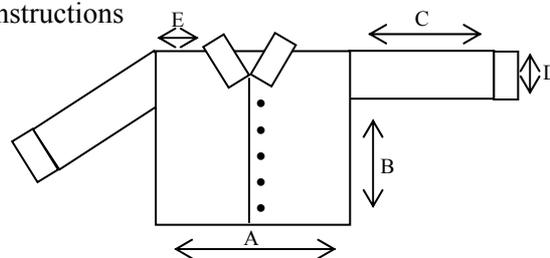
C – 4 – 5 marks

The candidate will be able to list and discuss a few of the pieces of information required for the design specification. The discussion will show little or no explanation.

Candidates may include diagrams as appropriate.

Answers should make reference to the following points:

- a description of the jacket in words, indicating length, width etc
- number of pockets
- seam types
- name of the designer
- date of developing the specification
- fabric details, the supplier of the fabric
- the composition of the fabric, the fabric content, care instructions
- width of fabric for the benefit of a lay planner
- a swatch of the fabric – in the variety of colours to be used.
- a back and front view of the jacket, showing design details – zips, buttons, seams, added details
- details of any other designs on the jacket – embroidery, beading etc etc
- views may have sizing details and other annotations
- details of construction method
- a step by step instruction on how to make the jacket including when to press etc
- the machines to be used for each seam, lockstitch, overedge, buttonholer
- the seam type, for each seam. Stitch length. Needle size
- other components, zip type, thread type, buttons etc to be used
- other items required to complete the jacket
- care label – size and placement
- care label – laundry instructions
- measurement key eg



	Measurements
A	
B	
C	
D	
E	

Candidates may also break this down into constituent parts for the specification.

1. Quality – specification details
2. Parts list – materials
3. Making plan
4. Production plan

10 Marks

1 (b) Critically discuss the role of the Quality Control Department in relation to the manufacturer of textile products.

Mark allocation: 15 marks

A – 12 – 15 marks

The candidate is able to critically discuss the value to the manufacturer of textile products of a quality control department. They demonstrate a clear understanding of the issues involved, giving full analysis.

B – 9 – 11 marks

The candidate is able to critically discuss the value to the manufacturer of textile products of a quality control department. They demonstrate an understanding of the issues involved, giving some analysis.

C – 7 – 9 marks

The candidate is able to critically discuss the value to the manufacturer of textile products of a quality control department. They demonstrate a limited understanding of the issues involved, giving limited analysis.

Answers should make reference to the following points:

- quality is one factor that can differentiate one retailer's product from another's
- in order that retailers provide the consumer with a quality product, it is up to the manufacturer of the product to put the necessary systems in place to make sure that every product that reaches store is a replica of the approved sample. The approved sample is the quality standard that has been agreed between customer and supplier
- the manufacturer has to make sure that every product that reaches the customer is an exact representation of the sample that was agreed initially, and a representation of what the designer intended
- inspection achieves the control of quality, and it is the point and type of inspection that is critical to the attainment of a quality product
- inspection does not add *value* to a product, it adds *cost*. Visually inspecting the garment is just adding time and effort and consequently cost, and because of this it is sometimes regarded as unimportant or something that if you are short of time you can do without
- the traditional role of a **Quality Control (QC)** department was to stop bad products leaving the factory and reaching the customer
- nowadays, it is a much more proactive department, working with the manufacturer unit to reduce the amount of bad work being made and helping people to make garments "right first time".

The Problem with Controlling Quality in a Clothing Factory:

- there are many variables in clothing and many subjective assessments that can be made about a garment
- there are a few things that a quality inspector can measure such as stitch size, seam widths and garment dimensions. But attributes such as “appearance”, symmetry and drape are all things that *cannot* be controlled and evaluated in the same way and are things that are absolutely critical if the customer is to be satisfied
- one person’s perception of how a garment should look or drape might be very different from another’s
- theoretically it is possible to find fault in almost any garment. If you pulled a garment out of your wardrobe, or off the rail in a shop, you could find something wrong with it
- a good QC department needs to establish what *is* and what *is not* commercially acceptable, and what *will* and what *will not* cause the product to fail, and ultimately be rejected by the customer. They create a range table called “tolerances” which give key measurements
- customer rejections of the product can have disastrous consequences: in the extreme, the customer may cancel the balance of contract and then the manufacturer is left with the garments; the customer may broadcast your poor performance within the industry, affecting your reputation; the customer may decide to place future business with your competitors
- quality has to be built into a product right from the market research stage through to packaging and despatch. A product must be fit for the purpose for which it is designed. Designers must think about quality and try to establish exactly what the customer requires from the product
- once the designer has finalised the garment and produced a detailed specification for the garment (this should include information, such as type of fabric, stitch size, seam finishes etc) it is up to the production department to put the necessary systems in place in order that consistent quality is achieved.
- **Causes of poor quality in a clothing factory:**
 - Machinery
 - Poor communication
 - Operator fatigue or indifference
 - Poor quality raw materials
 - High labour turn over
 - Inadequate training
 - “Designed in” problems
- the job of quality control is to report quality performance to management calculated as percentage of total production output
- to be successful in business you must make a profit. Every time you produce a defective product, you have lost money in terms of raw material cost ie the raw materials that were required to make the “second” and the time that was spent making the defective product

- **costs involved with quality control:**

Scrap: net loss in labour, materials and overheads that result from faults that cannot be economically repaired. Garments must be classed as “seconds”

Rework: time spent doing repairs, extra fabric necessary, paying operators to do jobs for second time

Retest: cost of re-inspection once the rework has been done

Downtime: waiting for re-cut panels is unproductive

- complaints – this affects both the reputations of the retailer *and* the manufacturer
- Return to Manufacturer (RTM) – this is when single or multiple garments are returned to the factory
- these costs would disappear if we did not have any defects and they include the cost of scrap, rework, retest, and downtime
- automation should be used where possible to provide consistency of quality consistency that is difficult for an operator to achieve manually
- investment in Prevention and Appraisal should result in a decrease in failure costs
- objectives of inspecting garments: to protect the customer from defective garments, to safeguard the reputation of the company, to provide information about failures
- the quality inspector’s findings and consequently their analysis should be ‘live-in-time’. If the problem occurs on Monday morning, then thousands of garments could have been made, containing the same fault, by the Friday afternoon
- institute key checkpoints at various stages in the manufacturing process.

15 Marks

Total 25 marks

2. Discuss how consumer purchasing of clothing has changed over the last three decades.

Mark allocation: 25 marks

A – 18 – 25 marks

The candidate is able to identify a wide range of factors that contribute to the changes in how clothing is purchased over the last three decades and clearly discusses the contribution of each factor.

B – 15 – 17 marks

The candidate is able to identify a range of factors that contribute to the changes in how clothing is purchased over the last three decades and discussion is developed although not fully.

C – 12 – 14 marks

The candidate is able to identify some factors that contribute to the changes in how clothing is purchased over the last three decades with little or no discussion.

Answer should make reference to the following points:

- the general public was also showing a willingness to accept **standard sizing**, and no longer required their clothes to be “made-to-measure”
- however, throughout the last decade, sales through small independent retail outlets have fallen by 45% (market share now sits at 14%) whilst sales through large retailers have increased by more than 17%
- the power of the multiple store is predicted to continue; they are able to exercise power over suppliers, they benefit from economies of scale, which in turn enables them to offer us cheaper merchandise. All this, combined with huge advertising budgets ensures that our custom is attracted and maintained
- today multiple ie organisations with more than 100 outlets, account for a huge percentage of retail sales, the top 10 of which account for just over 40% of all retail sales
- these retailers, especially in the UK, are willing to spend phenomenal amounts of money on their premises throughout the country in order to guarantee our purchase
- the high street is no longer our only option!
- **out of town discount outlets and factory outlets**, who do not have to pay the rates and exorbitant rents of city centre shops and are therefore able to offer the consumer “high street” brands at greatly reduced prices
- during the first half of the 1990s, a period of severe economic recession, we as consumers got used to discounting, sales, and special offers, used by retailers to generate additional sales
- today’s out of town discount outlets and factory outlets offer the consumer designer names, high street names, restaurants, ample parking, and most importantly huge discounts, sometimes as much as 70% off high street prices
- places like Freeport, West Lothian, and Sterling Mills, Tillicoultry offer not just shopping but a day out
- **out of town shopping centres** provide the consumer with all their favourite high street names under one roof. These centres do not offer the consumer the same discounts as the previous category but do offer convenience. This consists of ample parking, motorway access, all shops located inside
- **supermarkets** no longer merely offer groceries but now the likes of Tesco, Sainsbury, and Asda offer us their own brand clothing as well as a range of branded clothing (such as Levi’s 501) at greatly reduced prices. Like large multiples, they are able to offer us these reduced prices due to their huge buying power and capacity

- **mail order** over the last 20 years, there has been a relatively static use of mail order shopping, many of the high street retailers offer mail order
- **internet** possibly the largest change in retail history offering the consumer wide choice and convenience
- designers and manufacturers, especially in the clothing industry, gain direct access to consumers, bypassing traditional retail routes, and therefore bypassing the exorbitant rents and rates
- almost all high street stores offer goods via the Internet, next day delivery, often more/different choice from what is in stores
- many high street shops offer next day delivery, and returns can be made to the store or by mail
- **'Ebay'**, goods of any kind bought and sold on world wide web
- **digital TV** Web access has accelerated now that it has become an integral part of digital television services, and the interactive and high-resolution opportunities of digital television are generally viewed as being particularly "fashion friendly"
- the first retail distribution channels went on air in November 1998. British Digital Broadcasting, a joint venture between Carlton and Granada offered a few channels including "Shop!" a joint venture between Littlewoods and Granada
- **personal shopping**, many stores now offer this as a free service to customers
- discount retailers such as Primark, Matalan and TK Maxx offer consumers designer trends at bargain basement prices
- candidates may also refer to research eg statistics that show how we now spend our money on clothing eg census details.

Total 25 marks

3. Discuss stitch and seam types that may be used in the manufacture of a pair of denim jeans.

Mark allocation: 25 marks

A – 18 – 25 marks

Candidates will develop a comprehensive and detailed knowledge and understanding of the stitch and seam types that may be used in the manufacture of a fashion garment. Accurate information is used to support the answer.

B – 15 – 17 marks

Candidates will develop a good knowledge and understanding of stitch and seam types that may be used in the manufacture of a fashion garment. Information is clearly explained with some supporting evidence.

C – 12 – 14 marks

Candidates will demonstrate some knowledge of the stitch and seam types that may be used in the manufacture of a fashion garment. Information is explained in general terms with little supporting evidence.

Candidates may use diagrams where necessary.

Answers should make reference to the following points:

BS 3870: 1991 Part 1:

Schedule of Stitched and Seams

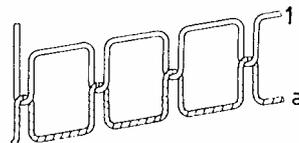
ISO 4915: 1991:

Textiles – Stitch types: Classification and Terminology

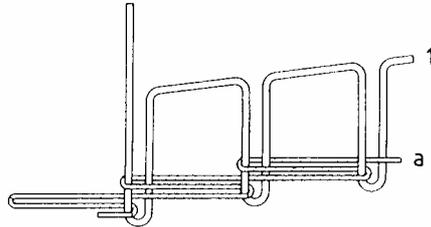
Stitch types

- Class 300 – Lock stitches
- Class 400 – Multi-thread chain stitches
- Class 500 – Overedge chain stitches
- Class 600 – Covering chain stitches

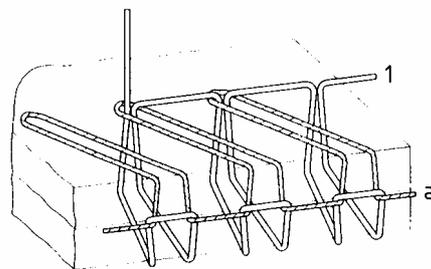
Class 300 – These stitches are formed with two or more groups of threads. The needle thread is inter-looped with the bobbin thread in order to produce a stitch that is identical on both sides.



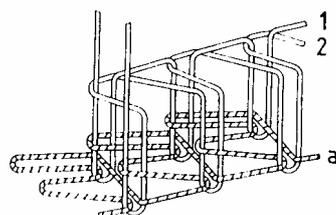
Class 400 – Multi-thread chain stitches. Similar to class 300, this stitch is formed with two or more groups of thread. The loops from the needle threads are passed through the material and secured by interlooping with loops formed by the loopers. This stitch class produces stitches that are strong but elastic.



Class 500 – This stitch class is used to neaten the edges of cut fabrics to prevent fraying. The stitch is formed by one or more groups of threads. At least one group of threads must pass around the edge of the fabric and can be formed by two, three, four or five thread machines.



Class 600 – This stitch class is produced by three groups of threads. One group covers the top surface, the second group covers the bottom surface whilst the third group passes through the material interlocking groups one and two. This stitch type is most commonly used when applying one ply of fabric upon another eg covering seams on knitwear or applying elastic trimmings to underwear etc.



SEAM TYPES

BS 3870: 1991: Part 2
 ISO 4916: 1991: Seam Classification and Structure

Seam Designation

ISO/BSI designates seams with five digits:

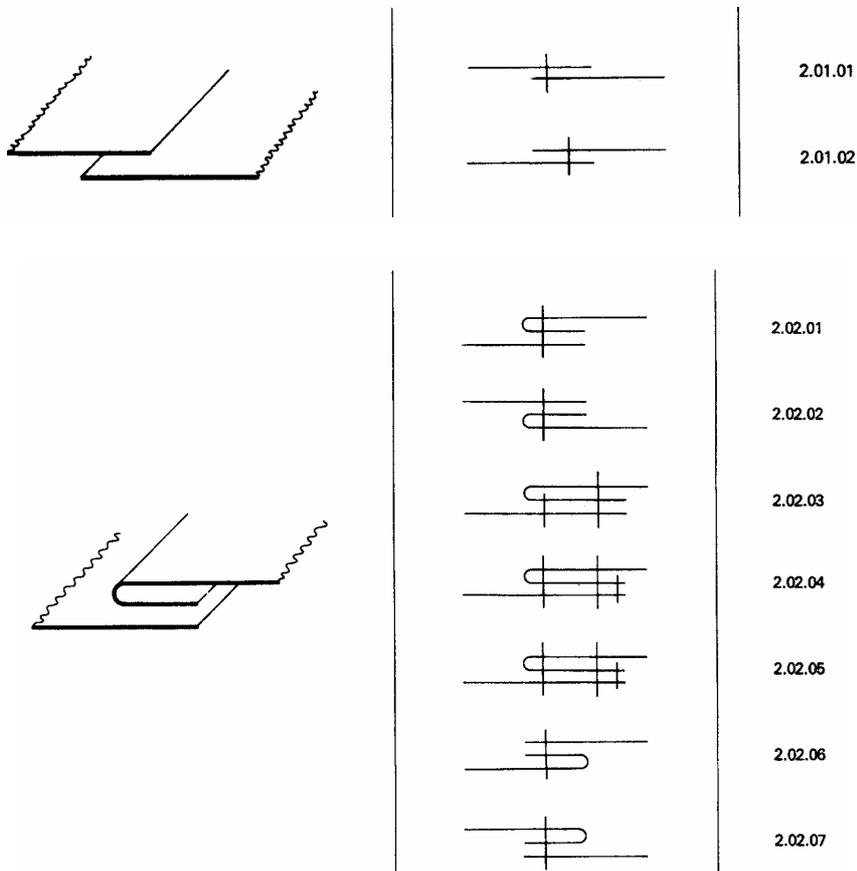
1 2 3 4 5

eg 0 0 0 0 0 First digit refers to the Class from 1 to 8 (see below), the second and third digits refer to material configuration from 01 to 99 and the fourth and fifth digits refer to needle penetrations and/or material configurations, also from 01 to 99.

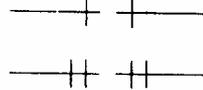
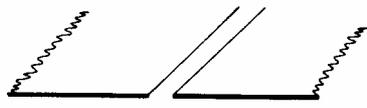
Seam Classification

- Class 2 – lapped seam
- Class 4 – flat seams
- Class 5 – decorative stitching
- Class 6 – edge neatening
- Class 7 – attaching of separate items
- Class 8 – single ply construction

Class 2 – The most commonly used seam. In this class, for clothing manufacture, is the looped seam, most commonly seen in jeans manufacture because of its strong construction. This class consists of a minimum of two components and can have a variety of numbers of rows of stitching.

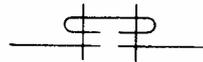


Class 4 – This seam is referred to as a flat seam because the edges do not overlap one another, they will be butted together. This type of seam will consist of two components and can be seen on very fine knitted garments where seams are required to be free from bulk.



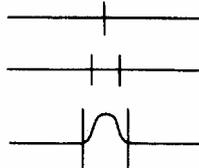
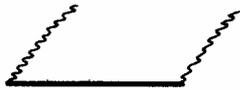
4.01.01

4.01.02



4.06.01

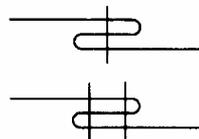
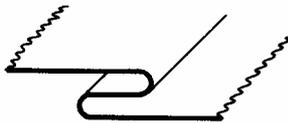
Class 5 – This seam class refers to decorative stitching resulting in decorative surface effects on the fabric eg pintucks, application of braids etc. This type of seam will consist of a minimum of one component.



5.01.01

5.01.02

5.01.03



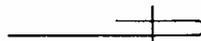
5.02.01

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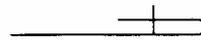
Class 6 – The seam class must include seams whereby the edges are neaten by means of stitches – can be used in all cases where raw edge requires finishing. There is only ever one component to this type of seam.



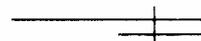
6.01.01



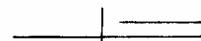
6.02.01



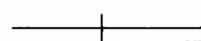
6.02.02



6.02.03



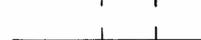
6.02.04



6.02.05



6.02.06

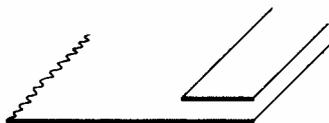


6.02.07

Class 7 – This seam class describes a seam that requires the addition of another component onto the edge of a piece of fabric eg elastic braid onto the edge of ladies briefs. This type of seam requires two components.



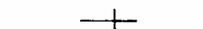
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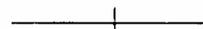
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7.02.02

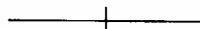


7.02.03



7.02.04

Class 8 – This seam class consists of one piece of fabric that is turned in on both edges. It is most commonly seen in belt loops or berts for which a folder can be attached to the machine. This type of seam requires only one component.



8.01.01

Total 25 marks

4. Discuss the range of dyes available for the successful dyeing of household textiles.

Mark allocation: 25 marks

A – 18 – 25 marks (a minimum of 4 marks from natural dyes)

Candidates will develop a comprehensive and detailed knowledge and understanding of the dyes available for successful dyeing of textiles. Accurate information is used to support the answer.

B – 15 – 17 marks (a minimum of 3 marks from natural dyes)

Candidates will develop a good knowledge and understanding of the dyes available for successful dyeing of textiles. Information is clearly explained with some supporting evidence.

C – 12 – 14 marks (a minimum of 2 marks from natural dyes)

Candidates will demonstrate some knowledge of the dyes available for successful dyeing of textiles. Information is expressed in general terms with little supporting evidence.

Answers should make reference to the following points:

Natural dyes

- plant, vegetable, insect or mineral sources. Plants being the major source. Leaves, stems, roots, seeds, petals, stamens, bark, and rinds.
- obtained by extraction using water. Uses large amounts of natural material.
- shades are normally duller than synthetic dyes
- high cost to dye with natural dyes
- natural dyes need mordants to 'fix' the dye. Mordant is applied for 20 – 30 mins, the fabric is then immersed in the dye bath. The temperature is raised and fabric is moved constantly to give a uniform dye. Unused dye is removed.
- chemical reaction between the dye and the mordant to form a new molecule within the fibre.
- poor resistance to light and washing. Fading due to chemical breakdown of the dye or the removal of the dye from the cloth.
- some finishes affect fastness. Fastness must be matched to end use of fabric
- colour is variable and is not constant from batch to batch.

Synthetic Dyes

- more technology and research due to cheapness of use therefore more viable for commercial use than natural. Industry has reacted well to criticism of environmental concerns.
- easy to get right/desired colour. Better reliability of dye match.

Types of synthetic dyes

- Acid dyes:
 - for man-made fibres, and natural protein fibres
 - work on anionic link between the dye and fibre molecule
 - non uniform dyeing can occur
 - good fastness to light, resists degrading effect of UV light, wash fastness is good depending on levelling characteristics of dye
 - resistant to acids
 - satisfactory dye uptake
 - overall fastness depends on the acid dye used and the fibre type.

- Azoic dyes:
 - also called naphthol dyes, ice colours or developed colours
 - used readily with man made and natural cellulose fibres
 - involves a reaction within the fibre polymer of the two components of the dye
 - a two stage process. Naphthol is dissolved in water. Fibre penetrated with solution. Secondly diazo component is converted to allow this stage. A reaction takes place between the naphthol and the diazonium salt (coupling) The fabric is dyed at this stage
 - very good fastness to light, washing
 - makes excellent bright red and orange
 - poor rub fastness.

- Basic dyes:
 - cationic dye, used on acrylic fibres and modacrylics
 - applied using a slightly acidic liquor, good substantivity, poor levelling, a retarder is required when dyeing
 - excellent light fastness, wash fastness
 - brilliant intense colours
 - only good fastness on acrylic

- Direct dyes:
 - used for cellulose fibres
 - dye in one bath method
 - attachment is through hydrogen bonding and Van der Waals forces
 - simple to apply therefore cheap cost
 - exhaustion is controlled by the adding of an electrolyte and regulation of liquor temperature
 - four types – easy to apply, self levelling. Control of addition of electrolyte and strict regulation of dye bath temperature
 - moderate light fastness. Lack of stable arrangement of electrons
 - poor wash fastness due to hydrogen bonds
 - low cost steps are taken with cellulose fibres to improve wash fastness
 - Poor fastness to light, washing perspiration.

- Disperse dyes:
 - developed for hydrophobic fibres
 - involves the use of a surface active agent to ensure uniform distribution of the dye and to make possible an attraction of the dye from the water
 - fibre attracts the dye from the water as they are insoluble even at high temperatures
 - used on man made, esters, cellulose, synthetics
 - using heat accelerates dyeing by increasing energy. Heat swells the fibres making it easier for the dye molecules to penetrate
 - dyed in open widths to prevent: ‘creasing’, darker marks of dye
 - requires ‘carriers’ and high temperatures
 - good fastness to light. Relatively stable. Good fastness to water

- Reactive dyes:
 - form covalent bonds, dye becomes part of the fibre
 - bright shades possible. High fastness. Resistance to sunlight
 - used for outdoor fabrics, and frequently laundered fabrics
 - man made fabrics and cellulose, synthetic nylon and natural protein fibres
 - dye/fibre reaction takes place when alkali is added to dye bath
 - two stages – diffusion of dye and reaction between dye and fibre
 - easy levelling therefore resistant to washing
 - very good fastness properties.

- Sulphur dyes:
 - contain sulphur in molecules, used for natural and man made cellulose fibres
 - gives blacks, mauves, olives, Bordeaux and reddish browns
 - dyes are reduced and applied under alkaline conditions
 - after exhaustion fabric is rinsed and exposed to atmosphere.

- Vat dyes:
 - best colourfastness of all. Used for natural and man made cellulose and cotton blends especially heavy fabrics
 - dye pigment is converted into a water solution using an alkaline solution
 - dye is absorbed into the fabric, re-oxidisation of the dye occurs and dyes the fibres
 - uses indigo chromophores, done in a large vat. Only used on expensive fabrics
 - excellent fastness to sunlight, washing and bleaching

- Mordant dyes:
 - used for dyeing wool and natural protein fibres, some synthetics

- Premetallise dyes:
 - used for man made, synthetic nylon and natural protein fibres

- Fluorescent Brighteners:
 - colourless dyes
 - UV light is absorbed and reflected as ‘blue light’
 - make textiles appear ‘whiter’
 - not a bleach as only effective in UV light
 - applied to most fabrics and is in washing powders
 - poor light fastness, but not a problem as replaced in the wash process

Total 25 marks

5. Clothing can contribute to a person's physical and emotional wellbeing.
Discuss this statement.

Mark allocation: 25 marks

A – 18 – 25 marks

Candidates are able to develop a full and coherent discussion of how clothing can contribute to a person's physical and emotional wellbeing. The discussion shows good analysis and the identification of the majority of the main points with full explanation.

B – 15 – 17 marks

Candidates are able to develop a discussion of how clothing can contribute to a person's physical and emotional wellbeing. Some points will be identified with explanation.

C – 12 – 14 marks

Candidates are able to identify a few of the main points of how clothing can contribute to a person's physical and emotional wellbeing with limited or no explanation.

Answer should make reference to the following points:

Physical

- With food and shelter is one of the three basic needs of a human.
- Clothing gives protection against cold, heat, wind, rain and snow. It protects against injury, at work or in a sport. It is used to avoid nakedness.
- Interaction between the human body, its clothing and the environment. Clothing helps us to feel comfortable in the environment.
- Body tries to maintain an even temperature of 37°C. Clothing maintains this by insulation, ventilation, moisture absorbency and moisture transport.

As an insulator

- Air is entrapped within the clothing, preventing the body from cooling too much.
- Helps to form a 'micro climate' around the body.
- The maintenance of this microclimate depends on the surface texture of the clothing, garment construction and the movement of air around the wearer. This could be due either to a person's activity or to 'wind'.
- The air is trapped inside the clothing next to the skin and between each layer. Also trapped between the fibres in the clothing, and there is an external film of air around the outside of the clothing.
- Ventilation may be required in the clothing to keep the body at 37°C.

Moisture removal

- The moisture people are losing all the time has to be 'taken up' by the clothing.
- Absorption of the moisture into the clothing, wicked to the outside layer, by capillary action and evaporated.
- Sportswear made using double layer fabrics, internal layer, and synthetic fibres, with 'wicking' properties. Outside layer, cotton, absorbs water, stores and allows evaporation. Perspiration is transported rapidly through the synthetic layer to the outer layer where it is stored and evaporated.
- The inner layer remains dry and the 'wet' clinging effect is minimised.

Psychological/emotional

- Can be matched to Maslow's theory.
- From basic needs, survival and protection from the elements.
- To belonging, following styles and codes.
- To social needs, peer pressure especially in teenagers.
- To self esteem, status dressing, designer labels, branded goods.
- To self actualisation: becoming an individual. Society no longer pressures you.
- Clothing is part of our socialisation, we imagine what others perceive of us by the way we look. We imagine our appearance to the other person, we imagine their judgement of our appearance and this leaves us with a feeling of pride or mortification.
- Clothing is used to form part of our identity. We use clothing to 'play' the roles that we fill.
- As a child, we play – 'anticipatory roles' – fireman, nurse. Then 'fantasy roles' – superman.
- We use the 'models' around us – mummy's shoes, daddy's slippers.
- As we get older we form new concepts of ourselves as the range of 'role models' we meet grow. We copy dress as well as other parts of personality.
- Teenagers express the changing of their identities from their parents. Align to several peer groups, by mimicking the clothing of the peer group and no longer wanting to be seen in the type of clothing their parents are wearing.
- Adults display role – business, romance. They dress in different clothing accordingly.
- Clothing indicates the relationship of the meeting they are in at any moment in time.
- 'Codes of behaviour' are followed in clothing. Learned from other's perception of our dress. We learn to conform and most of us learn to dress according to the 'norm' of each situation.
- Seen as an expression of our personality, and people often assess us by our clothing.
- Gives out messages. Gives clues of personality, mood, feelings, emotions – not always accurate as it does not allow for individuality.
- People tend to conform even though they have a desire for individuality.
- Clothing gives us a sense of belonging. Non-conformists need a lot of psychological security to 'carry off' an individual look.
- Clothing is seen as an extension of our body and acting as a 'second skin'.
- Different values in different societies. In socialist countries, fashion moves more slowly than in democratic societies, where there is constant change.
- The changing role of women in the last century has had a huge impact on the clothing worn by women.
- Some use clothing to try to move 'class'. They believe it gives them social mobility. After 'arriving' the clothing symbols are less important.
- Women and men who are upwardly mobile have more clothes than those in the 'aspired' situation.
- Clothing gives decoration. Wearer expresses themselves through clothing. Even where there is a minimum of clothing, beading and other forms of decoration take place.
- Clothing allows for identification, ethnic background, culture, religion, sports team. Uniforms.

Effect of colour on well-being

- Can state mood eg wearing red for a vibrant personality or for going to a party – a lively, bright colour.
- Can express personality – a person with a ‘dull’ personality can often be seen in black or other dark colours, often wears monochromatic colour scheme. They try to avoid attracting attention on themselves.
- Someone who is feeling a bit ‘low’ can often wear a bright colour to ‘cheer’ themselves up.
- Use of colour to ‘flatter’ the figure. Can help to visually ‘rectify’ perceived ‘faults’ in body shape.

Social and cultural aspects of clothing

- Creation of sub-cultures.
- Sense of belonging.
- Development of new fashion, street trends.
- Wearing of clothes/designs for cultural reasons.
- Wearing of certain clothes for certain occasions.
- Creation of “urban” street wear.
- Influence of music and art.

Total 25 marks

Question	Content	Elaboration	Skills		Totals
			Knowledge	Evaluation	
Section A					
(a)	The history of fashion design since 1900	The Technological Developments affecting Fashion	5		
(b)	The history of fashion design since 1900	The Technological Developments affecting Fashion	10		
(c)	The history of fashion design since 1990	The Technological Developments affecting Fashion		10	25

Question	Content	Elaboration	Skills		Totals
			Knowledge	Evaluation	
Section B					
1 (a)	Product Development	Creative designing from a brief, solving design problems, design specifications, research and experiment, realisation and evaluation	10		
	Product Development	Quality issues in the production process.		15	25
2	History of Fashion Design	Changes in the methods of consumer purchases of clothing	25		25
3	Garment Construction	In relation to construction methods – in particular Pattern Alteration and Garment Assemble.	25		25
4	Textile Properties	Dyes and dyeing – classification of dyestuffs, use of natural and synthetic dyestuffs, dyestuff and fabric affinities, colourfast properties.	25		25
5	History of Fashion Design since 1900	Introduction with Physiology and Psychology of Clothing	25		25

[END OF MARKING INSTRUCTIONS]