



Methodist Ladies' College
ATAR course examination, Semester 2, 2019

Question/Answer Booklet
SOLUTIONS

**MATERIALS
DESIGN AND
TECHNOLOGY**
ATAR Year 12
Section Three

Student Name: _____

Teacher Name: _____

Time recommended for these sections

Suggested working time for these sections: ninety minutes

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet

Please place a tick (✓)
in one of the following
boxes to indicate your
specialised context

Wood

Metal

Textiles

To be provided by the candidate

Standard items: pens (blue/black preferred), pencils
(including coloured), sharpener,
correction fluid/tape, eraser, ruler, highlighters

Special items: non-programmable calculators approved for use in this examination

Number of additional
answer booklets used
(if applicable):

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised material. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Structure of the examination

The Materials Design and Technology ATAR course examination consists of a written component and a practical (portfolio) component.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of written examination	Your mark
Section One Short answer	3	3	20 mins	14	14%	
Section Two Extended answer	3	3	40 mins	26	26%	
Section Three Candidates to choose one of the following contexts: Wood Metal Textiles	6	6	90 mins	75	60%	
Total					100	

Instructions to candidates

- The rules for the conduct of ATAR course examinations are detailed in the *Year 12 Information Handbook 2019*. Sitting this examination implies that you agree to abide by these rules.
- Write your answers in this Question/Answer Booklet.
- Answer the questions according to the following instructions.

Section Three: Answer all of the questions within your specialised field: Wood, Metal or Textiles.
- You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
- Supplementary pages for the use of planning/continuing your answer to a question have been provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued i.e. give the page number.

Textiles Context

This section contains **SIX (6) questions**. Attempt **ALL** questions from this section.

Suggested working time: 90 minutes

Question 7

33 marks

Refer to VOGUE pants pattern **V9361 View A** below for all parts of Question 7.

You have been asked to make a set of pant samples for **Winter 2020** by a local garment warehouse in Perth. The wholesaler has asked for **one sample in each size from 6 to 22**, using View A from this Vogue pattern.



View A

See next page

Question 7 continued.

FABRICS: Unsuitable for obvious diagonals.

*With Nap. **Without Nap. Suitable fabric types: Gabardine, Crepe, Denim.

Note: Fabric requirement allows for nap, one-way design or shading. Extra fabric may be needed to match design or for shrinkage.

NOTIONS: A, B: Three 1" (2.5 cm) Buttons. **C:** Three Pairs of Hook & Eyes.

Size Combinations: **A5(6-8-10-12-14) E5(14-16-18-20-22)**

Fabric widths given in centimeters.										
SIZES	6	8	10	12	14	16	18	20	22	
View A										
115 cm ^{*/**}	2.1	2.1	2.1	2.4	2.4	2.4	2.4	2.4	2.4	m
152 cm ^{*/**}	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	m
FUSIBLE INTERFACING A - 46, 51 cm - 0.8 m										
LINING A - 115 cm - 0.3 m										
View B										
115 cm ^{*/**}	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	m
152 cm ^{*/**}	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	m
FUSIBLE INTERFACING B - 46, 51 cm - 0.7 m										
LINING B - 115 cm - 0.5 m										
View C										
115 cm ^{*/**}	2.6	2.6	2.6	2.6	2.9	2.9	2.9	2.9	2.9	m
152 cm ^{*/**}	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	m
FUSIBLE INTERFACING C - 46, 51 cm - 0.8 m										

Question 7 continued

- (a) Using textiles specific terminology, describe the **styling** used in this pant design. **Four correct terms - ½ mark each** (2 marks)
Culotte style pant. ¾ length, dart shaped back, topstitched and shaped waistband, topstitched pocket flaps, fly front closure, double front button closure
- (b) What is the name given to the **shaping** technique used to shape the pant to fit the waistline? (1 mark)
Two correct terms – ½ mark each
Darts in the pant back & shaped waistband
- (c) Suggest the most appropriate type of **joining and finishing** technique to use when sewing the centre front and back seam of the pant. Justify your answer. (3 marks)

Name of **joining** technique: **open seam** 1 mark

Name of **finishing** technique: **overlocker neatened** 1 mark

Justification of techniques: **crotch seam – open seam reduces bulk and provides greater comfort – also enables the zipper closure to be inserted in the fly front .** 1 mark

- (d) Use the materials data table below. Suggest a **suitable fabric and fibre content** for the sample pants. This fabric and fibre content would be used for the final collection of pants. **Justify** the reason/s for your choice of fabric and fibre for the pants. (5 marks)

Information about materials – fabrics and fibres

	<i>Fabric/fibre type</i>	<i>Cost per metre / unit</i>	<i>Care instructions</i>
A	Gabardine 80% Cotton / 20% Polyester blend	\$16	<ul style="list-style-type: none"> • Machine washable • Line or tumble dry • Moderate iron • Do not bleach • Dry cleanable
B	Medium weight Crepe 60%Wool / 30% Nylon / 10% Lycra blend	\$20	<ul style="list-style-type: none"> • Machine or handwash in a laundry bag • Warm water – wool detergent only • Dry flat on a towel - do not tumble dry • Moderate steam iron • Do not bleach • Dry clean recommended
C	Medium weight Denim 90% Cotton / 10% Lycra	\$15	<ul style="list-style-type: none"> • Machine washable • Moderate to hot steam iron • Wash in moderately warm to hot water • Line or tumble dry • Do not bleach • Do not wash with whites
D	Bemsilk lining 100% polyester	\$5	<ul style="list-style-type: none"> • Machine washable • Line or tumble dry • Do not bleach • Moderate iron • Drycleanable
E	Interfacing	\$5	<ul style="list-style-type: none"> • Machine washable • Wash in warm water • Drycleanable • Line or tumble dry on low • Medium iron
F	Zipper	\$2	
G	Thread	\$4.20	
H	Buttons – 2.5cms width	10 cents	

Fabric name: Gabardine

Fibre Content: 80% Cotton / 20% Polyester blend

Explanation:

Gadardine is:

a strong, durable material with a twill weave
will drape nicely and hold the shape of the leg
a reasonable cost at \$16 per metre
can be machine washed and line or tumble dried
moderate iron temperature
comes in a range of dyed colours
easy to sew as it is very stable

80% Cotton / 20% Polyester blend is

Cool to wear, breathable, absorbent for summer wear

Easy care – will drip dry with minimal creases and therefore minimum ironing required

See next page

(e) Use the data tables provided above to calculate the cost of the sample collection of pants.

(7 marks)

Size	6	8	10	12	14	16	18	20	22	Quantity Required	\$ cost per Unit	Total \$ Cost
Fabric	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	18.5 m	\$16/m	\$296.00
Lining	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	2.7m	\$5/m	\$13.50
Interfacing	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	5.6m	\$5/m	\$28.00
Thread	1	1	1	1	1	1	1	1	1	9	\$4.20	\$37.80
Zipper	1	1	1	1	1	1	1	1	1	9	\$2	\$18.00
Buttons	3	3	3	3	3	3	3	3	3	27	0.10	\$2.70
											Total \$ Cost for Collection Samples	\$396.00

Total \$ Cost for Collection Samples: \$396.00

Question 7 continued

(f) Where and why will the interfacing be used in the pants? (2 marks)

Waistband front and back pieces and the pocket flaps – for support of the buttons and buttonholes and stiffening of the waistband and pocket flaps

(g) Suggest an ideal interfacing fabric for this purpose? (1 mark)

Fusible medium weight Pellon / Vilene

(h) Use the technical drawing template provided at the back of the exam paper to draw the working drawings / trade sketches for the View A pants in the space below. (5 marks)

1 mark for each aspect shown below:

Uses templates for correct proportion - Two dimensional working drawings / trade sketches – front view and back view without body

Fills the space with large drawings

Uses pencil or fine liner to draw images

Uses ruler for accuracy and neatness

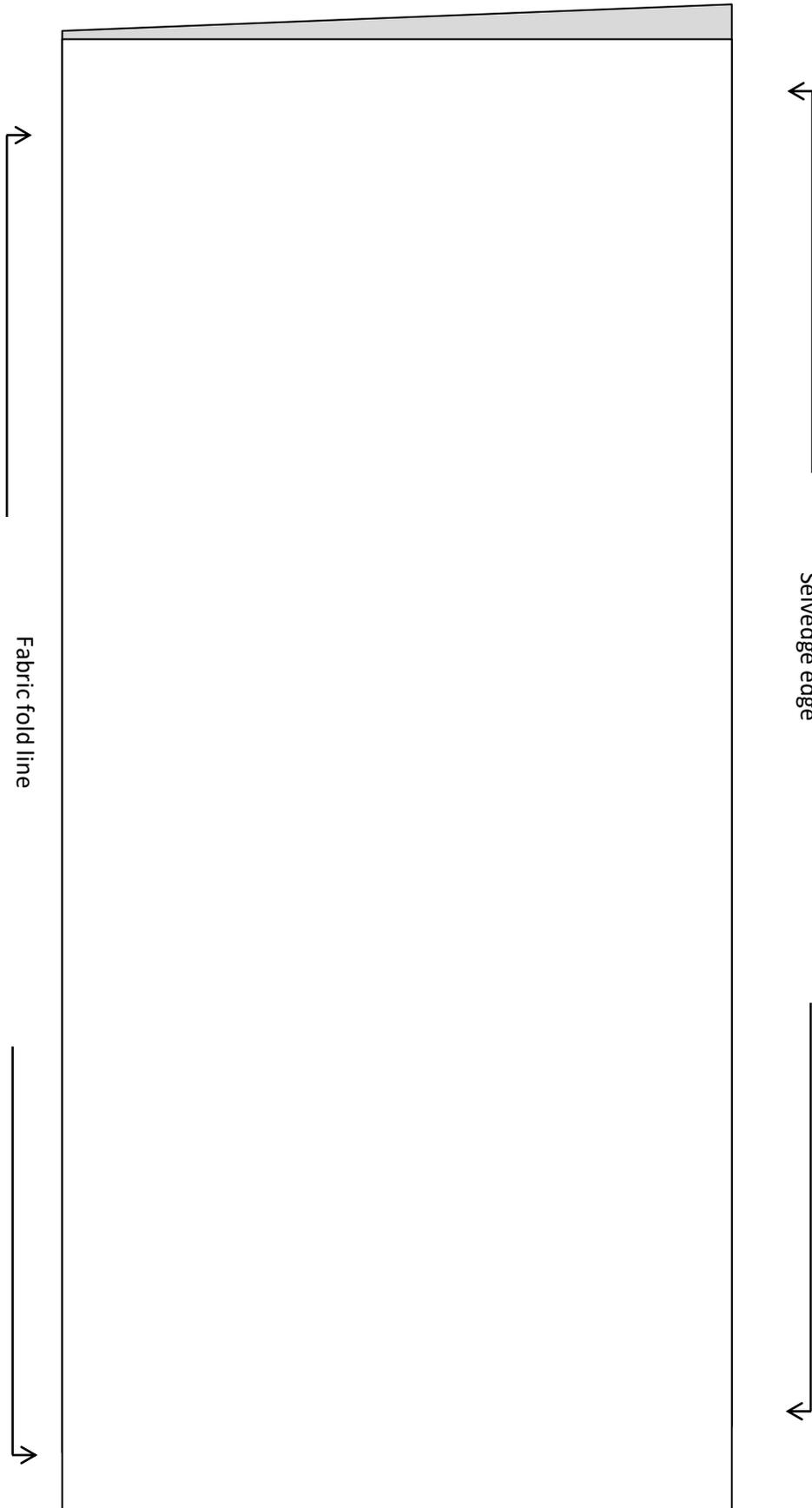
Measurements are included / estimated

Question 7 continued

(j) Using the pant pattern pieces provided on the separate page with this exam as a reference, arrange the pieces economically and correctly on the fabric layout below.

(7 marks)

See next page



See next page

In relation to the textiles project that you have undertaken throughout this year, describe how you have drawn upon **TWO (2)** of the following **sources of inspiration** to assist the design development for your product/s.

- Historical influences
- Social influences
- Cultural influences
- The work of other designers
- Current market trends

You may **use text and diagrams** to illustrate your answer to this question.

Inspiration 1:

Describes influence used and connection to their final piece 2 marks

Sketches relevance of the design influence 1 mark

Inspiration 2:

Describes influence used and connection to their final piece 2 marks

Sketches relevance of the design influence 1 mark

Question 9

10 marks

Innovations in the textiles industry over the past four decades have changed the types of fibres and fabrics available and the ways in which designers use them.

a) Identify and give a general explanation of **ONE (1) innovative product and ONE (1) innovative process** that has been developed recently and are currently being used in the Textiles industry.

(4 marks)

Innovative product: 4 marks

Identifies one innovative product and describes how it is used in the Fashion / textiles industry

Example products include: (list is not exhaustive)

Product 1 mark; description 3 marks

Microfibre

Bamboo

Hemp

Gortex

Wicking fabrics

Bicomponent yarns

Washable webs

Wearable technologies

Innovative process: 4 marks

Identifies one innovative process and describes how it is used in the Fashion / textiles industry

Process 1 mark; description 3 marks

Example products include: (list is not exhaustive)

Seamless Knitting

Digital printing

3D printing

Nano technology

Computer linked sewing machine

Robotics

Artificial intelligence

b) Identify **TWO (2) mechanical properties** of fibres and fabrics and discuss how these properties can be changed through the **blending of fibres and yarns**. (4 marks)

2 marks each

Identifies mechanical property 1 mark

Describes how it is changed through blending of fibres 1 mark

Example properties: strength, elasticity, resilience (wrinkle resistance), dimensional stability, abrasion resistance

Examples:

Strength / Wrinkle resistance of the fibre is increased in a Polyester / Cotton Blend - used in mens work shirts - Polyester adds strength / wrinkle resistance to the Cotton fibre

Elasticity is increased when Elastomeric is added to Nylon in a Nylon / Elastomeric blend used for swimwear

c) Give an example of a chemical finish applied to a fabric and explain how it changes the performance of the fabric. (2 marks)

2 marks

Identifies chemical finish 1 mark

Describes how it changes the performance of the fabric. 1 mark

Example finishes:

Mercerisation of cotton – NaOH applied to remove convolutions to increase lustre, strength and dyeability of cotton,

Delustering of polyester satin using Titanium oxide solution to reduce lustre of synthetic fibres

Water repellent finish – silicones applied to fabrics to make them waterproof,

Flourochemsitry finish – provides an invisible barrier to oils and stains Eg Scotchguard

Antimicrobial finish – chemical treatment to control the growth of bacteria, fungi and dust mites

Teflon finish – fluorochemistry finish to control staining, soiling of fabrics

Flame retardant finish – Trevira – to give fabrics flamen protection

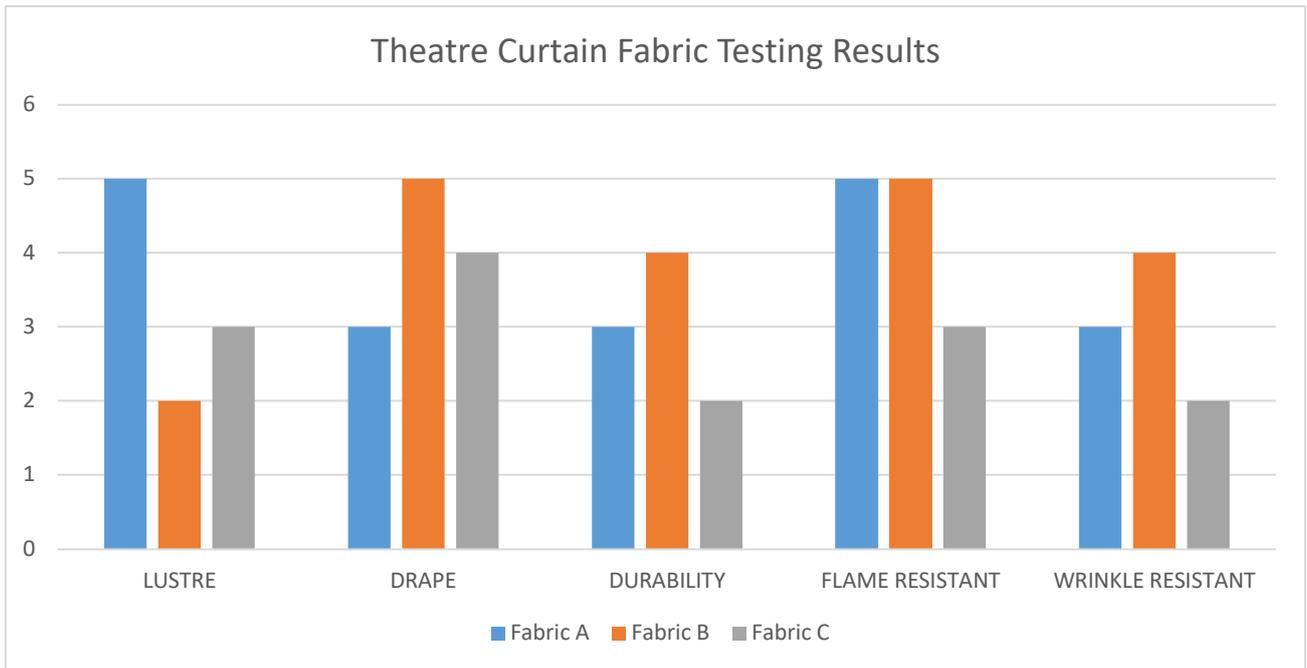
Examples:

Question 10

6 marks

The City Council has asked you to manufacture new curtains for the front of the stage at His Majesty’s Theatre in Perth. In the table and graph below is the data received from testing three different dark red fabrics for consideration.

Theatre Curtain - Fabric Test Comparison Data	Fabric A	Fabric B	Fabric C
LUSTRE	5	2	3
DRAPE	3	5	4
DURABILITY	3	4	2
FLAME RESISTANT	5	5	3
WRINKLE RESISTANT	3	4	2



Using the data provided, select and justify your choice of fabric for this scenario.

(a) Select your choice of fabric **Fabric B** (1 mark)

(b) Justify your choice of fabric (5 marks)

Explains the positive of each fabric property – 1 mark each

Desirable for this scenario that are properties exhibited by Fabric B:

Low lustre – will absorb light rather than reflect it in the theatre

Excellent drape – will hang in attractive folds

Good durability – long lasting fabric

High flame resistance - in case of fire

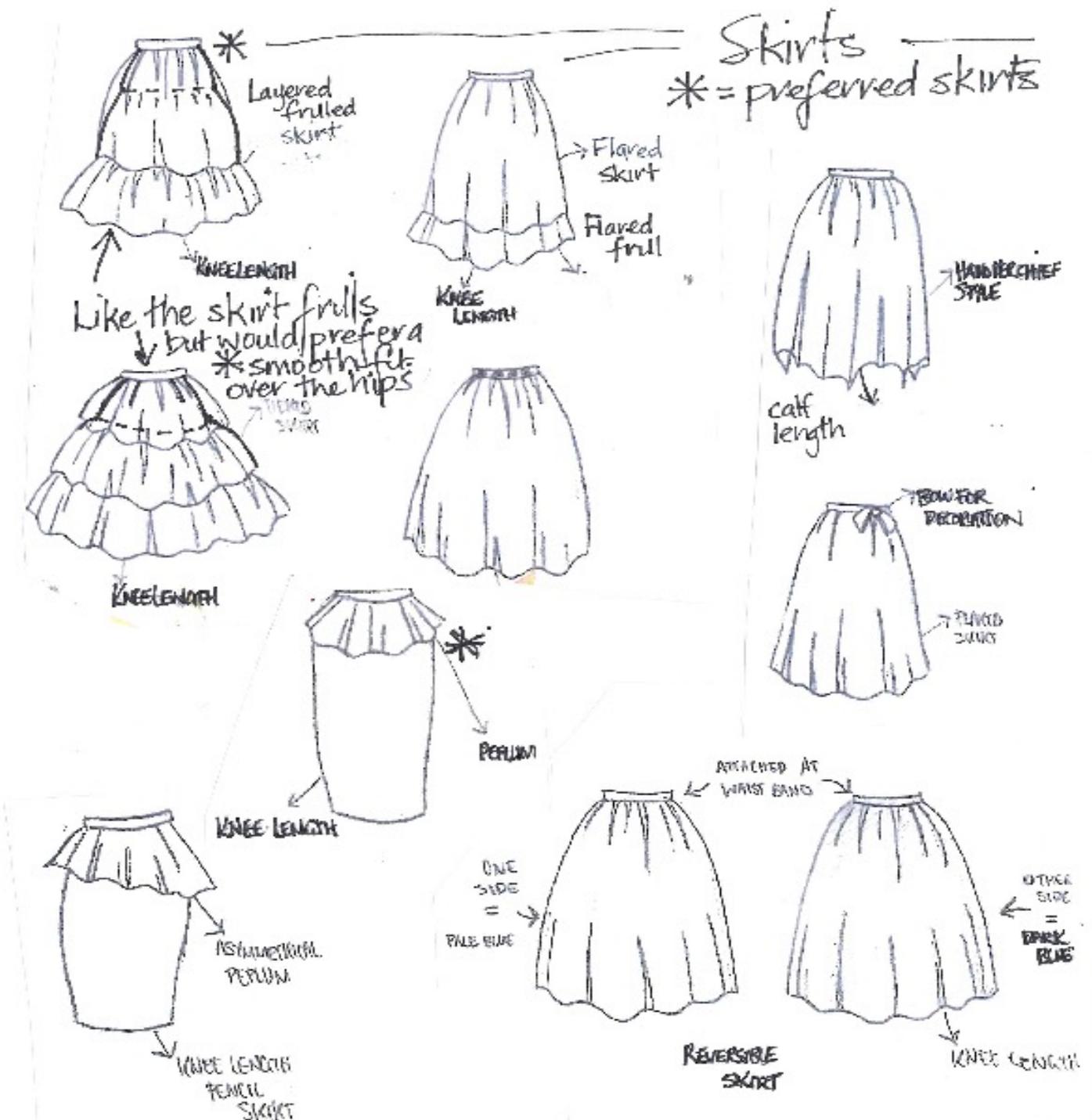
High wrinkle resistance – will not crease or need a lot of ironing

Below is a range of initial rapid concept sketches that a designer produced for their client. To help the designer develop some concept sketches, the client gave the following design specifications:

- The garment should have a bohemian / peasant style
- The top should be easy to put on and remove without a fastening
- The skirt should have a waistband, be full and create a hourglass shape when fastened using a back zipper
- The jacket / cape should have an embellishment or decorative feature
- The fabric used should be cool, comfortable and easy care, with minimal ironing required

The annotated designs shown below have some client feedback for the designer to consider in their further design development.

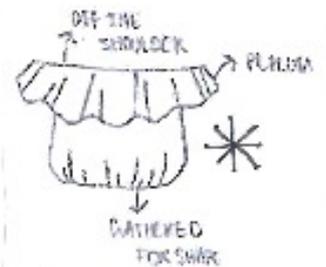
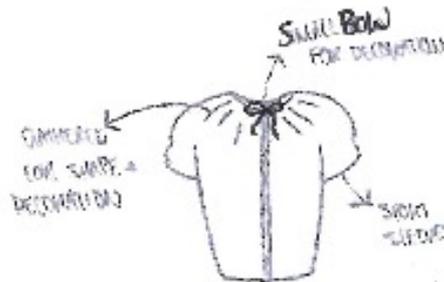
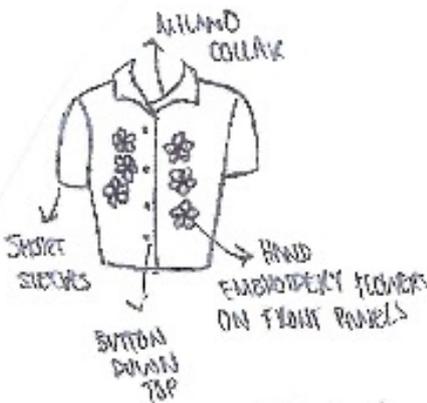
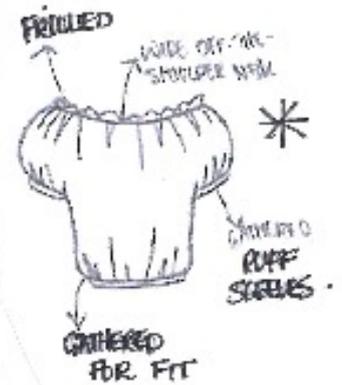
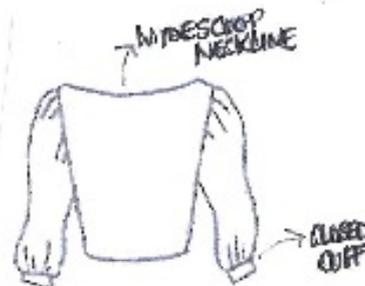
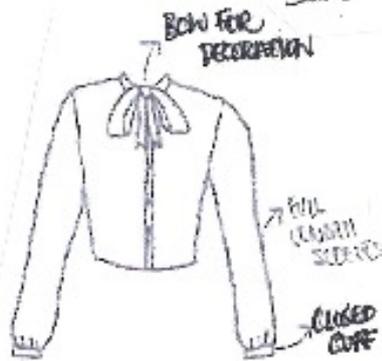
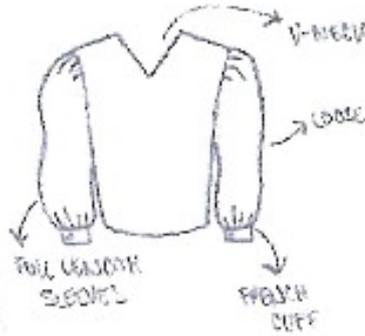
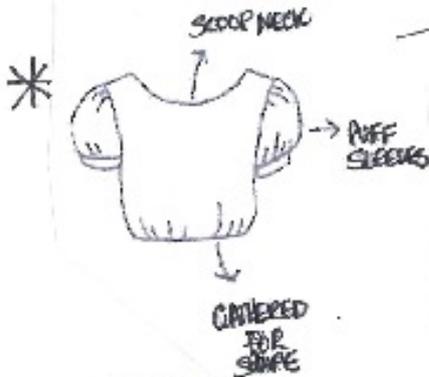
NOTE: Skirt Designs – client preferred skirts have an asterisk against them



Tops, Bodices, Jackets and Cape Designs – client preferred designs have an asterisk against them

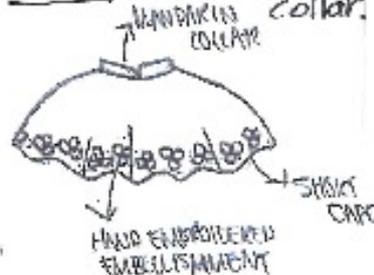
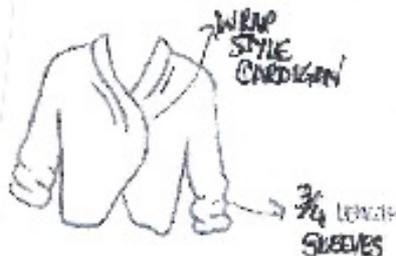
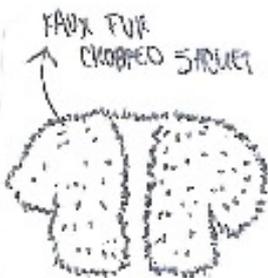
Preferred tops = *

Tops/bodices



Jackets & Capes

do not like the mandarin collar.



Question 11 continued

Using the information on the previous pages that identifies the **client preferred designs**, and using the fashion template provided at the back of the exam paper, **create ONE (1) three dimensional rendered design concept (presentation drawing)** that could be presented to the client for consideration.

Use **annotation to describe and justify** your design decisions.

(10 marks)

5 marks for drawing technique:

Uses templates for correct proportion - Three dimensional rendered presentation drawing – front view / back view / close up features 3 marks

Fills the space with large drawings 1 mark

Uses pencil or fine liner to draw images – renders images to show colour and form – 1 mark

5 marks for best use of client desired features:

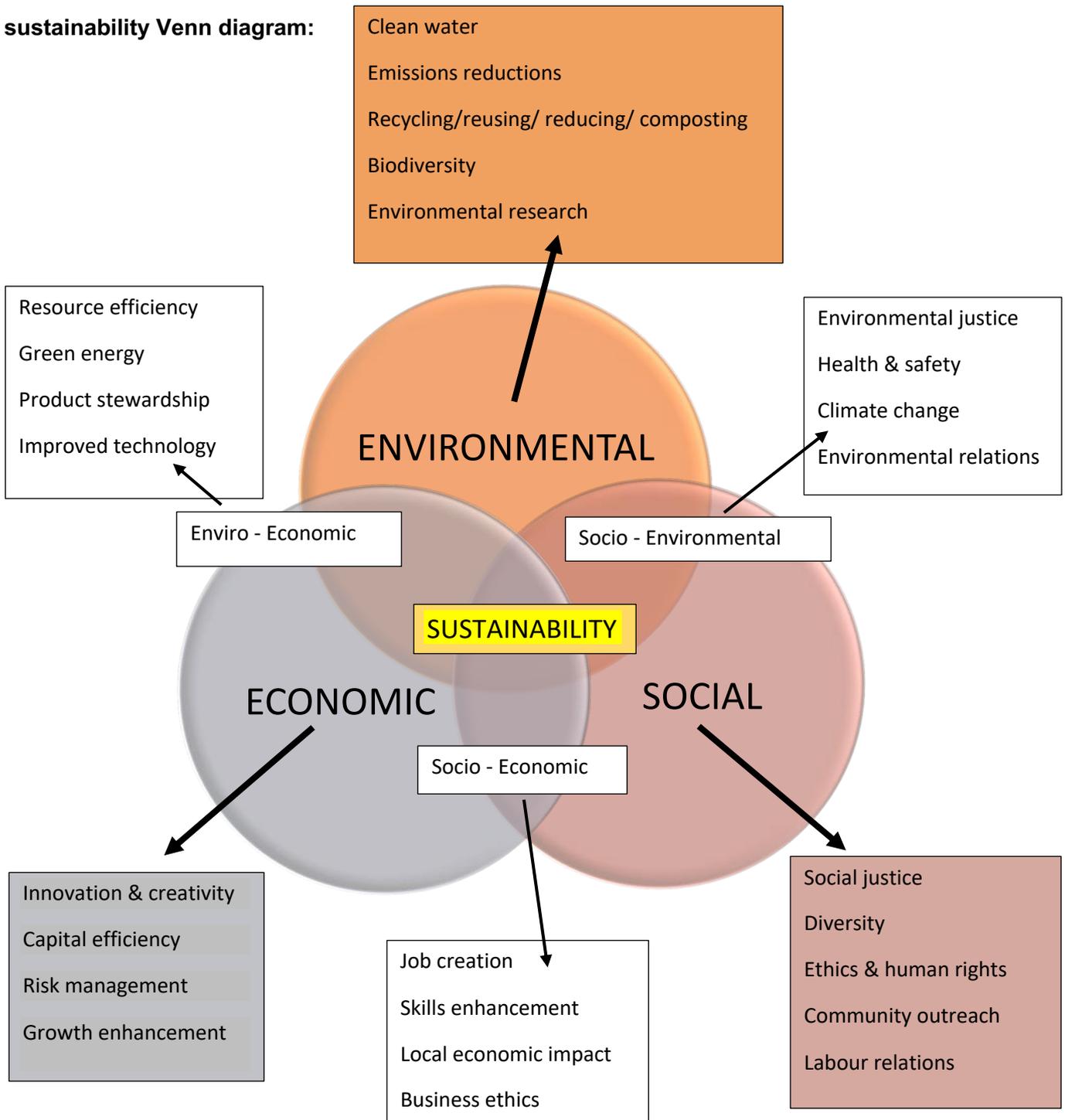
- The garment should have a bohemian / peasant style – layered fitted frilled skirt, peasant style blouse
- The top should be easy to put on and remove without a fastening - elasticised easy fit blouse
- The skirt should have a waistband, be full and create a hourglass shape when fastened using a back zipper -
- The jacket / cape should have an embellishment or decorative feature
- The fabric used should be cool, comfortable and easy care, with minimal ironing required – annotated fabrics

Use the information provided in the paragraph and the Venn diagram below to **discuss current ideas concerning implementation of sustainability concepts in a Fashion and Textiles context.**

‘Sustainability thinking in the past was focused mainly on environmental factors; however, the thinking now is more focused on the interaction between the environment, society and economics. For a product or system to be sustainable, it needs to consider the impact on the environment, how it affects people and it needs to make sense economically.’

The Venn diagram shown below depicts three overlapping circles, representing environmental needs, economic needs, and social needs; the area where the circles overlap and all three needs are met is the area of sustainability.

A sustainability Venn diagram:



Question 12 continued

Answer 8 – 10 marks

- refers to the three aspects of sustainability given in the diagram
 - Environmental
 - Social
 - Economic
- uses and explains three or more of the key ideas under each aspect and relates these directly to sustainable practice in a Fashion / Textiels context

Answer 4 - 7 marks

- refers to the three aspects of sustainability given in the diagram
 - Environmental
 - Social
 - Economic
- uses and explains two or three of the key ideas under each and relates some of these to sustainable practice in a Fashion / Textiels context

Answer 1 - 3 marks

- refers to the three aspects of sustainability given in the diagram
 - Environmental
 - Social
 - Economic
- uses and explains one of the key ideas under each / some of these to sustainable practice in a Fashion / Textiels context

END OF EXAMINATION PAPER

See next page