



ATAR course examination, 2019

Question/Answer booklet

MATERIALS DESIGN AND TECHNOLOGY

Sections One and Two

Please place your student identification label in this box

WA student number: In figures

--	--	--	--	--	--	--	--

In words

Time allowed for this paper

Reading time before commencing work: ten minutes

Working time: two and a half hours

Time suggested for these sections

Suggested working time for these sections: sixty minutes

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer booklet

Number of additional
answer booklets used
(if applicable):

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

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
Section One Short answer	3	3	20	27	15
Section Two Extended answer	4	4	40	37	25
Section Three Candidates to choose one of the following contexts: Wood Metal Textiles	6	6	90	69	60
Total					100

Instructions to candidates

- The rules for the conduct of the Western Australian external 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.

Sections One and Two: Answer all questions.
- You must be careful to confine your answers to the specific questions asked and to follow any instructions that are specific to a particular question.
- Supplementary pages for planning/continuing your answers to questions are 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.

Section One: Short answer**15% (27 Marks)**

This section has **three** questions. Answer **all** questions. Write your answers in the spaces provided.

Supplementary pages for planning/continuing your answers to questions are 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.

Suggested working time: 20 minutes.

Question 1**(9 marks)**

Identify **three** different communication techniques you have used in the design development of a project. Outline how you have used each technique to communicate your design ideas to a client.

Communication technique	Outline

See next page

Question 2

(12 marks)

Consider a project you designed this year when answering the following questions.

- (a) Explain how you considered function in the design of your project. (3 marks)

- (b) Explain how you considered safety in relation to the end user when designing your project. (3 marks)

(c) Describe how you addressed **three** environmental issues associated with the manufacture of your project. (6 marks)

Question 3 (6 marks)

Outline **three** techniques a designer can use to assess the success of their final product against the design requirements.

Section Two: Extended answer

25% (37 Marks)

This section has **four** questions. Answer **all** questions. Write your answers in the spaces provided.

Supplementary pages for planning/continuing your answers to questions are 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.

Suggested working time: 40 minutes.

Question 4

(8 marks)

Explore how advances in **two** manufacturing methods have affected purchasing trends in modern society.

Question 5

(9 marks)

The introduction of the 'KeepCup' came about from a drive to reduce the environmental impact of disposable cups. Consider this statement when answering the following questions.

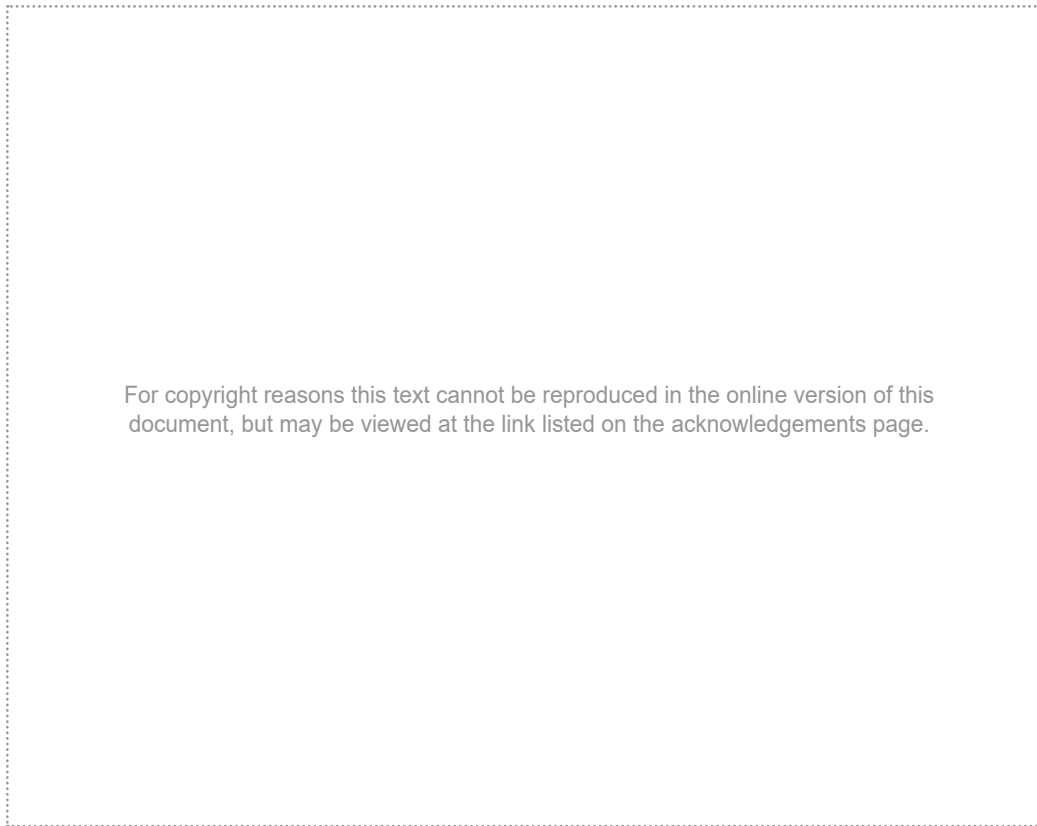


- (a) Identify **two** forms of research the designer could have conducted and describe how each form would have affected the final design. **(6 marks)**

- (b) Identify **three** benefits to the designer of undertaking extensive research. **(3 marks)**

Question 6

(11 marks)



- (a) With reference to the above images, name **two** elements of design and describe how they have worked together to improve the aesthetics of this product. (4 marks)

- (b) Explain how the principle of proportion is demonstrated in the design of this product. (3 marks)

- (c) Identify how you could change this design to employ repetition and explain how this would improve the aesthetics of this product. (4 marks)

Question 7

(9 marks)

Consider the potential hazards of the use of a machine in your context. Use the risk level key below to identify **one** high, **one** moderate and **one** low risk that may result from the use of the machine and complete the risk assessment table below.

Risk level key:	
High risk: Immediate action to control the risk is required before work can begin.	
Moderate risk: Immediate short-term control is required before work can begin, with a plan for a long-term solution.	
Low risk: Attention is required in a reasonable time frame to control the risk.	

Machine name: _____

Risk assessment table			
Risk level	Hazard	Injury	Controls
High			
Moderate			
Low			

ACKNOWLEDGEMENTS

Question 5 Image from: KeepCup. (n.d.). *Almond* [Photograph]. Retrieved May, 2019, from <https://au.keepcup.com/shop/almond>

Question 6 Image from: Chen, Z., & Chen, J. (2017). *Image* [Photograph]. Retrieved May, 2019, from <https://competition.adesignaward.com/design-image.php?y=2017&design=66691>

This document – apart from any third party copyright material contained in it – may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that it is not changed and that the School Curriculum and Standards Authority is acknowledged as the copyright owner, and that the Authority's moral rights are not infringed.

Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the School Curriculum and Standards Authority. Copying or communication of any third party copyright material can be done only within the terms of the *Copyright Act 1968* or with permission of the copyright owners.

Any content in this document that has been derived from the Australian Curriculum may be used under the terms of the Creative Commons [Attribution 4.0 International \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) licence.