



ATAR course examination, 2018

Question/Answer booklet

MATERIALS DESIGN AND TECHNOLOGY

Sections One and Two

Please place your student identification label in this box

Student number: In figures

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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	30	15
Section Two Extended answer	4	4	40	38	25
Section Three Candidates to choose one of the following contexts: Wood Metal Textiles	6	6	90	75	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 2018*. 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% (30 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**(8 marks)**

Working drawings and specification sheets are an integral part of the production planning process.

- (a) List **three** essential pieces of information that must be included on a working drawing **or** specification sheet. (3 marks)

- (b) Identify **three** consequences of an error in a working drawing **or** specification sheet. (3 marks)

- (c) Describe how a working drawing **or** specification sheet contributes to materials and costing predictions. (2 marks)

See next page

Question 2

(10 marks)

Define the following design fundamentals and describe how you applied each one in the design of **one** of your projects this year.

Aesthetics: _____

Function: _____

Sustainability: _____

Safety: _____

Cost: _____

Question 3

(12 marks)

Using annotations, identify and evaluate the successful application of **three** ergonomic and **three** anthropometric features to this mountain bike on the image below.



End of Section One

See next page

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Section Two: Extended answer**25% (38 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**(7 marks)**

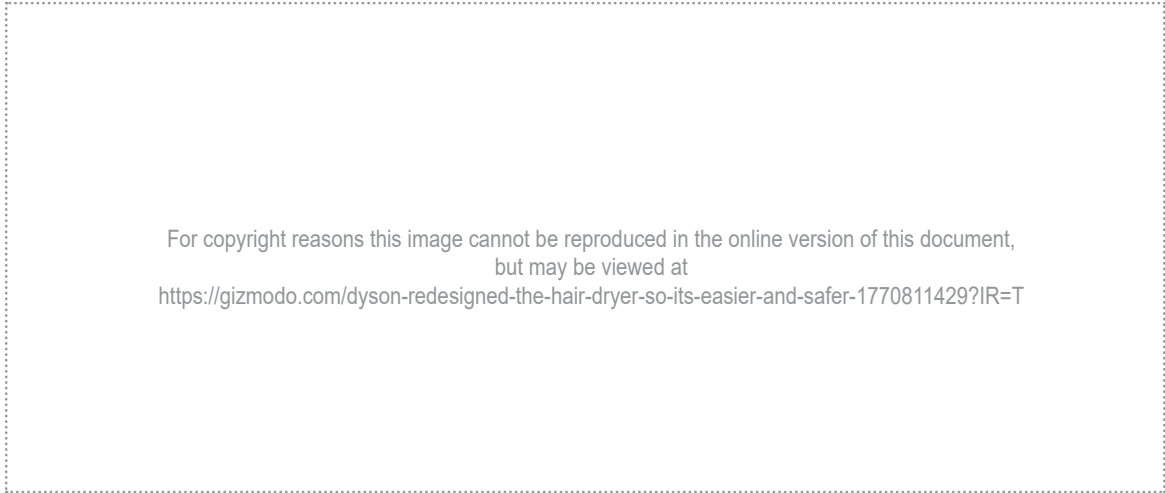
- (a) Using an example, explain the difference between a hazard and a risk. **(2 marks)**

- (b) Identify **two** pieces of information that can be found on a material safety data sheet and explain why material safety data is important. **(5 marks)**

Question 5

(10 marks)

A designer's ability to predict evolving and changing consumer demands will depend on their ability to draw on, analyse and interpret information from a large and ever-increasing range of sources.



- (a) In light of this statement, explain how the designer could have collected information to identify and predict the needs and wants of consumers with regard to the hair dryer pictured above. (4 marks)

Question 6

(11 marks)

Car stereos have evolved rapidly, particularly over the past 20 years.

1999



Features:

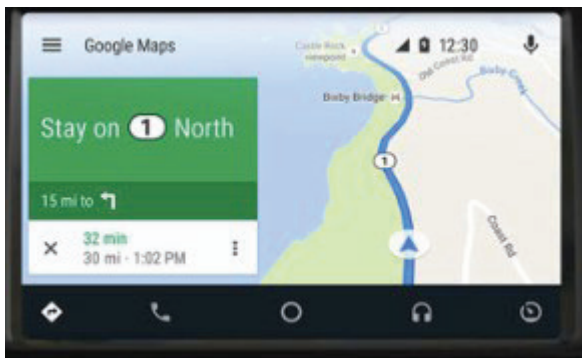
- digital volume buttons
- separate power button
- green and orange display options
- treble/bass adjusters
- presets for up to 36 AM and FM stations
- Dolby enhanced sound
- 35 Watt amplifiers x 4
- CD player
- small removable left panel for storage in keyring panel pouch (123 section).

2017



Features:

- touch screen
- compatible with most smart phones
- bluetooth capability
- map navigation
- voice recognition
- call/voice text/voicemail/read out loud functions
- compatibility with music apps and stored music
- ability to add podcasts, audiobooks, news or sports radio and many other apps
- must be connected to smart phone via cable or via bluetooth.



- (a) Analyse the **two** car stereos in relation to the following influences on design, using the specifications provided to support your analysis. (9 marks)

Innovation: _____

Lifestyle: _____

Consumer demand: _____

- (b) Describe the relationship between innovation, lifestyle and consumer demand. (2 marks)

ACKNOWLEDGEMENTS

- Question 3** Image from: Kent International Inc. (n.d.). *29" men's Kent DS Flexor mountain bike*. Retrieved May, 2018, from <https://www.amazon.ca/Mens-Kent-Flexor-Mountain-Bike/dp/B01LYT5UCA>
- Question 5** Image from: Dyson. (2016). [Dyson Supersonic hair dryer]. Retrieved May, 2018, from <https://gizmodo.com/dyson-redesigned-the-hair-dryer-so-its-easier-and-safer-1770811429?IR=T>
- Question 6**
- Image 1**
Haugland, Ø. (2002). *Philips car stereo (RC 624)*. Retrieved May, 2018, from <http://oyvind.servehttp.com/philips1.htm>
- Image 2**
Apple. (n.d.). [Head unit with Apple CarPlay]. Retrieved May, 2018, from <http://www.clipinteractive.com/the-clip-interactive-blog/2017/1/13/radio-and-the-evolving-dashboard-introduction>
- Image 3**
Google. (n.d.). [Android Auto with Google Maps]. Retrieved May, 2018, from <http://www.autoblog.it/post/842678/come-funziona-android-auto-l-aggiornamento-arriva-per-tutti-i-telefoni>

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