



## ATAR course examination, 2017

### 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

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### Time allowed for this paper

Reading time before commencing work: ten minutes  
Working time: two and a half hours

### Time recommended 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	21	15
Section Two Extended answer	4	4	40	31	25
Section Three Candidates to choose <b>one</b> of the following contexts: Wood Metal Textiles	5	5	90	82	60
				<b>Total</b>	100

## Instructions to candidates

- The rules for the conduct of the Western Australian external examinations are detailed in the *Year 12 Information Handbook 2017*. 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 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.

**Section One: Short answer****15% (21 Marks)**

This section has **three (3)** questions. Answer **all** questions. Write your answers in the spaces provided.

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.

Suggested working time: 20 minutes.

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**Question 1****(12 marks)**

In a project you designed this year, a range of communication techniques was used throughout the process. Define each of the following communication techniques and outline how it was used in your portfolio.

- (a) Rapid concept development (3 marks)

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- (b) Design development (3 marks)

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- (c) 3D presentation drawings (3 marks)

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See next page

**Question 1** (continued)

(d) 2D working drawings/specification sheets (3 marks)

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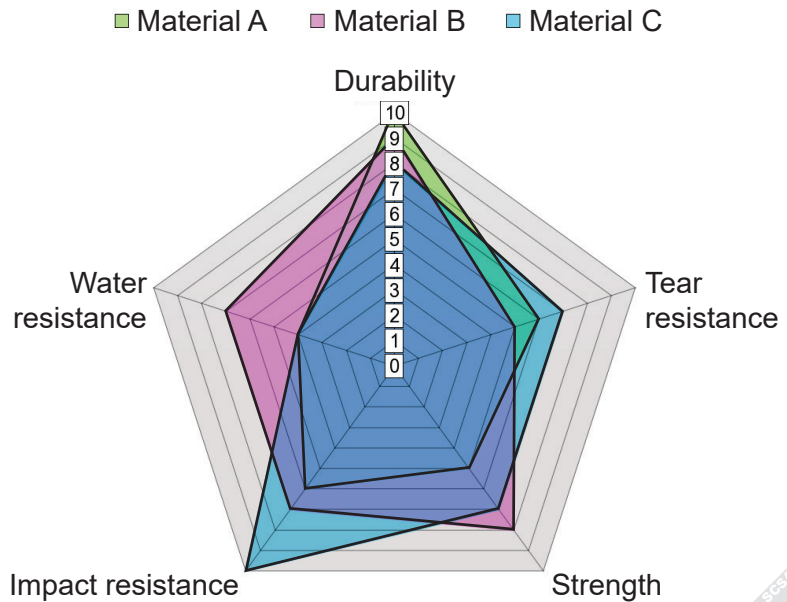
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Question 3

(4 marks)

The image below is of a popular activity tracker. The device is wireless enabled and pairs with a smartphone to measure and track data such as the number of steps walked, heart rate, quality of sleep and other personal metrics involved in vigorous movement during prolonged fitness activities. The activity tracker is sweat-, rain- and splash-proof. However, it is not waterproof.



The designer of the activity tracker considered **three** materials for the strap. Using the information given and the data in the diagram above explain, with reference to the properties, which material would be most suitable for the strap.

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End of Section One

See next page

**Section Two: Extended answer**

**25% (31 Marks)**

This section has **four (4)** questions. Answer **all** questions. Write your answers in the spaces provided.

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.

Suggested working time: 40 minutes.

**Question 4**

**(6 marks)**

Identify and compare how **two** different elements of design have been used in these two can openers.

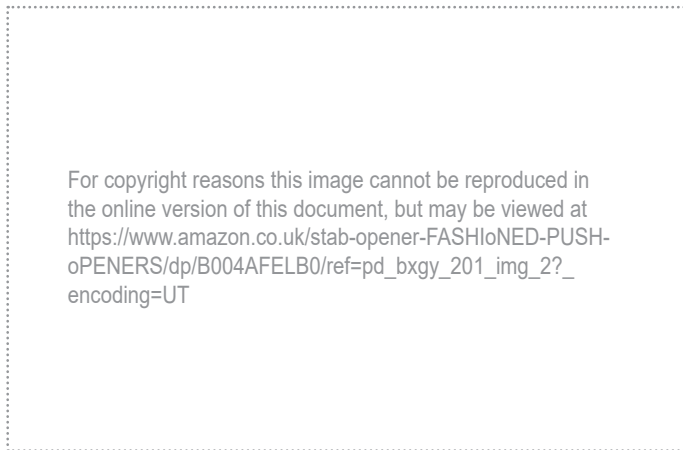


Image 1



Image 2

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**Question 5**

**(10 marks)**

The brand of ride-on hand luggage for children pictured below was created by British designer Rob Law. Since the release of the first model in 2006, Law has sold over two million products worldwide.



















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