



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

Question/Answer Booklet

**MATERIALS
DESIGN AND
TECHNOLOGY
ATAR Year 12
Sections One and Two**

Student Name: _____

Teacher Name: _____

Time allowed for this paper

Reading time before commencing work: 10 minutes

Working time: 2 ½ 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	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						
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.

Sections One and Two: Answer **all** questions.
- 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.

Section One: Short answer

14 Marks

This section contains **THREE (3) questions**. Attempt **ALL** questions from this section.

Suggested working time: 20 minutes

Question 1

6 marks

'The Cactus' in Perth City was unveiled in 2011 and was designed and created by artist James Angus.

With reference to the image below, identify **THREE (3) elements** and **THREE (3) principles of design** and explain how each of the elements and principles has been used successfully in this sculpture



Element 1:

(1 mark)

Explanation:

Question 1 continued

Element 2:

(1 mark)

Explanation:

Element 3:

(1 mark)

Explanation:

Principle 1:

(1 mark)

Explanation:

Principle 2:

(1 mark)

Explanation:

Principle 3:

(1 mark)

Explanation:

Question 2

4 marks

This question is about manufacturing techniques.

Complete the table below to contain the following information.

- a) Identify **TWO (2) different joining techniques** you might use in the construction of a product.
- b) List **ONE (1) specialised piece of equipment or machinery** needed to complete the joining technique.
- c) Identify **ONE (1) advantage** and **ONE (1) disadvantage** of using each joining technique.

Name of the joining technique		
Specialist equipment or machinery required		
Advantage		
Disadvantage		

Question 3**4 marks**

Designers at FREEDOM furniture are creating a new range of outdoor furniture incorporating three different materials: wood, metal and textiles. The outdoor lounge shown below will be marketed in Australia in Summer 2020.



- a) In relation to your context area of study, identify **ONE (1) finish** that could be used to **protect** this product in the **outdoor environment** to which it will be exposed. Explain the **function of the finish**. (2 marks)

Finish:

- b) Outline the **advantages and disadvantages** of using this finish. (2 marks)

Advantages:

Disadvantages:

End of Section One

See next page

Section Two: Extended Answer

26 Marks

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

Suggested working time: 40 minutes

Question 4

8 marks

A small-scale manufacturer was visited by Work-Safe and deemed to be non-compliant with a number of Occupational Safety and Health rules and regulations.

- a) Outline **TWO (2) benefits to employers** and **TWO (2) benefits to employees** of complying to Occupational Safety and Health standards. (4 marks)

TWO (2) benefits to employers:

TWO (2) benefits to employees:

- b) Identify and discuss **FOUR (4) strategies** a textiles manufacturer could implement to establish and maintain a safe work culture and environment for employees. (4 marks)

Strategy One:

Question 4 continued

Strategy Two:

Strategy Three:

Strategy Four:

Question 5

8 marks

This question is about the Design Process.

- a) List **FOUR (4) methods** a designer may use to communicate their design ideas to their client. (2 marks)

- b) Describe how a designer might use **client feedback** to improve the design of a product before creating a prototype for the client. (3 marks)

Question 5 continued

- c) Identify and describe how designers can utilise **market research** to inform the design development of a new product.

(3 marks)

Question 6

(10 marks)

Design specification sheets are prepared by the designer before a new product can be manufactured. A **working or technical drawing** is always included on a design specification sheet.

- a) Describe the **details** that must be included on a **working or technical drawing**.

(2 marks)

- b) What is the **purpose of including a working drawing** on a design specification sheet?

(2 marks)

- c) List **THREE (3) other pieces of information** you would expect to find on a design specification sheet for a product from your context area and explain why these are important.

1.

(2 marks)

Question 6 continued

2.

(2 marks)

3.

(2 marks)

End of Section Two

See next page

