



Western Australian Certificate of Education Examination, 2012

Question/Answer Booklet

MATERIALS DESIGN AND TECHNOLOGY

Stage 3

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 for paper: 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
Section Three 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 tape/fluid, eraser, ruler, highlighters

Special items: non-programmable calculators approved for use in the WACE examinations

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 notes or other items of a non-personal nature in the examination room. 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 examination comprises a written examination worth 50 per cent of the total examination score and a practical (portfolio) examination worth 50 per cent of the total examination score.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of total exam
Section One: Compulsory short answer	3	3	20	16	7.5
Section Two: Compulsory extended answer	3	3	40	27	12.5
Section Three: Sectionalised and extended answer Candidates to choose one of the following contexts:					
Wood	5	5	90	69	30
Metal	5	5	90	69	
Textiles	5	5	90	69	
				Total	50

Instructions to candidates

- The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2012*. Sitting this examination implies that you agree to abide by these rules.
- Answer the questions according to the following instructions.

Section One: Answer **all** questions. Write your answers in this Question/Answer Booklet.

Section Two: Answer **all** questions. Write your answers in this Question/Answer Booklet.
- 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.
- Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
 - Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
 - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question that you are continuing to answer at the top of the page.

See next page

Question 2

(5 marks)



Figure 1

- (a) Examine the illustration provided in Figure 1 and identify **two (2)** design features that make the product appealing to an audience. (2 marks)

- (b) Choose **one (1)** ergonomic design feature and comment on why it is important to the function of the kettle. (3 marks)

Question 3

(6 marks)

- (a) Explain how the testing of material properties helps designers to select materials for use in a manufactured product. (3 marks)

- (b) Identify and describe **one (1)** test that can be used to assess the physical properties of **one (1)** of the following materials: (3 marks)

- cotton
- jarrah
- aluminium.

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End of Section One

See next page

Section Two: Compulsory extended answer

12.5% (27 Marks)

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

Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

- Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
- Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question that you are continuing to answer at the top of the page.

Suggested working time: 40 minutes.

Question 4

(13 marks)

Refer to the illustration of the floor lamp in Figure 2.

- (a) Identify **three (3)** design features of the floor lamp in Figure 2 and describe them with reference to the elements and principles of design. (6 marks)

One: _____

Two: _____

Three: _____



Figure 2

Description: _____

Question 5

(8 marks)

A trainee collapsed because the concentration of the solvents used in the preparation area of a factory had reached a dangerous level. The trainee was found by co-workers when they noticed the smell of vapours coming from the area and went to investigate.

- (a) List **three (3)** possible factors that may have contributed to this hazardous situation.

(3 marks)

One: _____

Two: _____

Three: _____

- (b) Develop a **five (5)** point risk management plan for the handling of hazardous materials described in the scenario above.

(5 marks)

One: _____

Two: _____

Three: _____

Four: _____

Five: _____

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Published by the School Curriculum and Standards Authority of Western Australia
27 Walters Drive
OSBORNE PARK WA 6017