

COMMONWEALTH OF AUSTRALIA

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Family Name	
Given Names	
Student Number	
Teaching Period	Semester 2, 2016

FINAL EXAMINATION	DURATION
PRT452 – Software Engineering: Process and Tools	Reading Time: 10 minutes
	Writing Time: 180 minutes

INSTRUCTIONS TO CANDIDATES

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

- This is a RESTRICTED OPEN BOOK examination
- No calculators are permitted
- One A4 sheet of handwritten double-sided notes permitted
- Hard copy, unannotated English translation dictionary only

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	2 x 20 Page Book 1 x Scrap Paper

THIS EXAMINATION PAPER AND SUPPLIED MATERIALS ARE NOT PERMITTED TO BE REMOVED FROM ANY EXAMINATION VENUE IN ANY CIRCUMSTANCE. THIS EXAMINATION IS PRINTED DOUBLE-SIDED.

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DOUBLE-SIDED.**

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Section A
Multiple Choice Questions
Total No of Marks for this section: 20 Marks

This section should be answered in the Answer Booklet provided.
Please note that every question in section A needs to be answered.

Marks for each question are indicated.

Suggested Time allocation for Section A: 20 minutes

Section B
Short Answer Questions
Total Number of Marks for this section: 80 Marks

This section should be answered in the Answer Booklet provided.
Please note that every question in section B needs to be answered.

Marks for each question are indicated.

Suggested Time allocation for Section B: 80 minutes

Question 1

Please describe the handover problems between the development team and the evaluation team.

(Marks: 15)

Question 2

Please describe the two distinct goals of the testing process in detail.

(Marks: 15)

Question 3

Please explain what each of the annotations

@Before,

@BeforeClass,

@After,

@AfterClass, and

@Test

provided by JUnit do and why they are provided.

(Marks: 15)

Question 4

Please list the five principles (SOLID) in object-oriented programming and explain the idea of them.

(Marks: 15)

Question 5

Please answer the following questions about a code review tool you know.

a) What is the name of the tool?

(Marks: 5)

b) What are the three advantages to use this tool rather than other tools for your project?

(Mark: 15)

Section C
Short Answer Questions

Total Number of Marks for this section: 80 Marks

This section should be answered in the Answer Booklet provided.
Please note that every question in section C needs to be answered.

Marks for each question are indicated.

Suggested time allocation for Section C: 80 minutes

Question 1

What is codeline, baseline and mainline?

(Marks: 15)

Question 2

Please provide your arguments why you agree or disagree the opinion that a separate team in addition to development team is necessary for testing purpose.

(Marks: 10)

Question 3

Design Patterns

a) Please use an example to draw a class diagram of the Façade pattern.

(Marks: 5)

b) Write out the implementation code of the Façade pattern in a programming language you are familiar with.

(Marks: 10)

Exam continues on the next page

Question 4

(Refer to the code below)

```
private void startProcessing(Map<MyKeyEnum, String> map) {  
    Processor myProcessor = new Processor();  
    for (Entry entry : map.entrySet()) {  
        switch(entry.getKey()) {  
            case KEY1:  
                myProcessor.processStuffAboutKey1(entry.getValue());  
                break;  
            case KEY2:  
                myProcessor.processStuffAboutKey2(entry.getValue());  
                break;  
            case KEY3:  
                myProcessor.processStuffAboutKey3(entry.getValue());  
                break;  
        }  
    }  
}
```

- a) Examine the code and identify one code smells in this code. (Marks: 5)
- b) Describe how you would refactor this code to remove this smell. (Marks: 5)
- c) Before refactoring you should write a unit test. Write a unit test suitable for one of your proposed refactorings. (Marks: 15)
- d) Refactor the code (Marks: 15)

When answering parts c) and d), you can use any programming language you are familiar with.