THE UNIVERSITY OF WESTERN AUSTRALIA

Computer Science & Software Engineering

SEMESTER 1, 2016 EXAMINATIONS

CITS3403
Agile Web Development

FAMILY NAME: _____ GIVEN NAMES: _____

STUDENT ID: | | | | | | | | | SIGNATURE: _____

This Paper Contains: **16** pages **(including title page)**
Time allowed: **2:00 hours**

Section A: HTML5, CSS, JavaScript, DOM, Events	30 marks
Section B: MEAN Stack Development	30 marks
TOTAL MARKS:	60 marks

Candidates must attempt ALL questions. The questions should be answered in the space provided in this examination paper.

Calculators are not permitted.

PLEASE NOTE

Examination candidates may only bring authorised materials into the examination room. If a supervisor finds, during the examination, that you have unauthorised material, in whatever form, in the vicinity of your desk or on your person, whether in the examination room or the toilets or en route to/from the toilets, the matter will be reported to the head of school and disciplinary action will normally be taken against you. This action may result in your being deprived of any credit for this examination or even, in some cases, for the whole unit. This will apply regardless of whether the material has been used at the time it is found.

Therefore, any candidate who has brought any unauthorised material whatsoever into the examination room should declare it to the supervisor immediately. Candidates who are uncertain whether any material is authorised should ask the supervisor for clarification.

Supervisors Only - Student left at:

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Section A: HTML5, CSS, JavaScript, DOM and Events

1. (15 marks)

(a) Write a CSS class of unordered lists called *fremantle* which makes the background of the list purple, the text white, and replaces the bullet point with an image, `anchor.jpg`.

(3 marks)

(b) Explain how HTML5 and CSS help separate content from presentation.

(3 marks)

(c) Give JavaScript code to create a new `SharePortfolio` object. The share portfolio should be a collection of `Shares` along with a function `value` that returns the total value of the share portfolio. Each `Shares` should have a name, a value per share, and the number of that share in the portfolio.

(4 marks)

(d) Write a JavaScript function to modify the Document Object Model to remove all forms from a webpage.

(5 marks)

2. (15 marks)

(a) Explain what a closure is in JavaScript and give an example?

(4 marks)

(b) Describe the main steps required to make an animation of a ripple effect using a Canvas in HTML5. Every time the user clicks the mouse on the canvas, circular waves should spread out from that point, like ripples in a pond.

You do not need to write the code, but just explain the main objects and functions required to implement this.

(5 marks)

(c) Given an array of `Student` objects, where each student has a `name` and `mark`, write a javascript function that will construct a table of students, ordered from highest to lowest by mark, and append the table at the end of the document.

(6 marks)

Section B: MEAN Stack Development

3. (10 marks)

(a) Expand each of the following abbreviations and give a short explanation of each:

- REST

- CRUD

- MEAN

- TDD

- NPM

(5 marks)

(b) Describe the main components of an Express project with a Mongo database and an MVC architecture. Your answer should reference both the directory structure of the project, and the node packages used.

(5 marks)

4. (10 marks)

(a) Given the following client brief, in the space provided below, specify a set of mongoose schemas to describe the necessary models for this data.

"A movie has a title, a release year and the name of a director. It also has a synopsis (a block of text), a cast (a list of names), and a list of reviews.

Each review has an author, a date, a start rating (out of 5), and a body of text."

(6 marks)

(b) Given the schema in the previous part of this question, write a series of Mongo commands for the Mongo shell to populate a database with two movies, each having at least one review.

(4 marks)

5. (10 marks)

(a) Explain why asynchronous programming is important in Node. Write an asynchronous JavaScript function `majority` that takes an array of strings and a callback function as arguments.

It should determine the most frequently appearing string in this list, and pass this string to the callback function.

(5 marks)

(b) Write a Mocha test to validate the code you wrote in the first part of this question. The code should have at least two tests.

(5 marks)

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