SCHOOL OF SCIENCE

GMIT EXAMINATIONS

SESSION: Sample 2015/2016

PROGRAMME: BSc. Software Development

YEAR/STAGE: Year 3

MODULE: Data Representation and Querying

INTERNAL EXAMINER(S): Dr Ian McLoughlin

EXTERNAL EXAMINER(S): Dr Michael Schukat

Mr Tom Davis

TIME ALLOWED: 2 hours

INSTRUCTIONS TO CANDIDATES:

Attempt any <u>FOUR</u> (4) questions. All questions carry equal marks.

Attachments: No

Special Requirements: No

Calculators Permitted: Yes

Question 1

A company called Hammy has a web application that allows farmers keep track of their livestock. Hammy's application also has a HTTP API, where user data can be requested.

(a) Explain what HTTP requests are, and how they relate to Hammy's API. (20 marks)

(b) Explain the difference between the header and the body of a HTTP response. (20 marks)

(c) Explain what URL encoding is. (10 marks)

Question 2

You work for a company called CardCred. CardCred provides financial services for web retailers that sell products online. They mainly handle credit card transactions.

(a) Explain what the HTTP POST method is. (20 marks)

(b) Explain why CardCred might use the POST method instead of the GET method. (20 marks)

(c) Explain what the HTTP PUT method is used for. (10 marks)

Question 3

WikiSpi is a product that crawls Wikipedia articles, storing various information about them in a database. They make the information available through an API that provides results in JSON format.

(a) Explain what JSON is. (20 marks)

(b) List and explain four JSON data types. (20 marks)

(c) Find and explain three syntax errors in the following JSON code:

```
{ id: 123
, "url": en.wikipedia.org/wiki/Galway-Mayo_Institute_of_Technology
, "title": "Galway-Mayo Institute of Technology"
, datetime: "2015/11/01 13:43:12.123Z" }
```

(10 marks)

Question 4

Datala is a company that has an API that provides financial information in XML format.

(a) Explain what is meant by XML. (20 marks)

(b) Explain the difference between elements and attributes in XML, and give one example of when an element must be used over an attribute. (20 marks)

(c) Explain the Document Object Model. (10 marks)

Question 5

You have an interview for Facebook, and they ask you the following technical questions. Answer each of them.

(a) Explain, with reference to the Facebook web application, what an AJAX call is. (20 marks)

(b) Explain why asynchronous calls are used in JavaScript, as opposed to synchronous ones. (20 marks)

(c) Explain what a page refresh is. (10 marks)