UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 5, Examination in Engineering, August 2015

Module Number: EE5207 Module Name: Internet Technologies
Part - II

[1 hour and 45 minutes]

[Answer **all questions**, each question carries 10 marks]

Q1. a) i) Briefly explain two methods used in HTTP protocol.
ii) Give two examples for HTTP status code.
iii) Briefly explain the usage of HTTP header.

[3 marks]

b) The code in Listing 1 is written using Node.js.

Listing 1: Node.js code

```
var http = require('http');
var requestListener = function (request, response) {
  response.writeHead(200, {'Content-Type': 'text/plain'});
  response.end('Hello Node.js');
}

var server = http.createServer(requestListener);
server.listen(3000);
```

i) Explain the purpose of each line.
ii) We want to render the HTML code `<h1> Welcome to Node.js <h1>` in the browser. How would you change the above code to do that?

[2 marks]

c) Explain the behavior of code segment given in Listing 2. [2 marks]

Listing 2: Node.js code

```
var fs = require('fs');
var http = require('http');
var url = require('url');


http.createServer(function(req, res){
```

```
    var request = url.parse(req.url, true);
    var action = request.pathname;

    if (action == '/logo.png') {
      var img = fs.readFileSync('./nodejs-logo.png');
      res.writeHead(200, {'Content-Type': 'image/png' });
      res.end(img, 'binary');
    } else {
      res.writeHead(200, {'Content-Type': 'text/plain' });
      res.end('Hello World \n');
    }
}).listen(3000);
```

d) The code in Listing 3 is written using Jade template engine language. Write the HTML generated from this. [2 marks]

Listing 3: Jade template code

```
- var usingJade = false
doctype html
html(lang="en")
  head
    title= pageTitle
    script(type='text/javascript').
      if (foo) {
        bar(1 + 5)
      }
  body
    h1 Jade - node template engine
    #container.col
      if usingJade
        p You are amazing
      else
        p Get on it!
      p.
        Jade is a terse and simple
        templating language with a
        strong focus on performance
        and powerful features.
```

e) Explain the behavior of the code in Listing 4. [1 mark]

Listing 4: Node.js code

```
var express = require('express');
```

```
var app = express();

app.set('view engine','ejs');

app.get('/',function(req,res)
  res.render('default',{user:"John Smith"});
});
```

Q2. a) Create a JavaScript object array to represent books in a bookstore. A single book object should contain properties for name of the book, book type, price, a description, book rating and whether the books available for purchasing.

[2 marks]

b) Briefly explain Angular.js and give advantages of using it.

[1 mark]

c) Use angular.js to do following.

i) Create an angular module "bookstore".
ii) Create a controller "storeController".
iii) Store book data created in section Q2a) in the controller.

[3 marks]

d) Write a simple HTML page to do following.

i) Use the "bookstore" module, created in section Q2c) in the HTML page.
ii) Use the storeController created in section Q2c) inside a section.
iii) Display all books as an unordered list.
iv) Under each item, display a button called "purchase" if it is allowed to be purchased.

[4 marks]

Q3. a) Explain naming convention and directory structure used while creating ASP.NET MVC controllers and views.

[1 mark]

b) Figure Q3.b shows the relationship among Course, Enrollment and Student classes.

i) Briefly explain what is .NET Entity Framework

[1 mark]

ii) Compare Entity Framework Code First and Database First approaches.

[1 mark]

iii) Define three classes in C# such that they can be used in Database context class.

[3 marks]

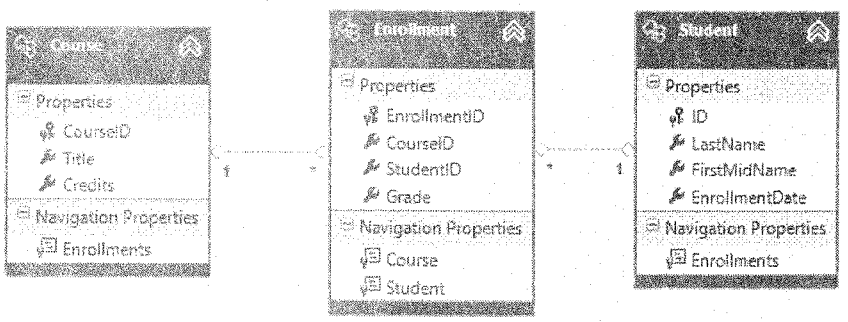

Figure Q3.b: Relationship between entities

iv) Write Database context Class to be used with .NET Entity Framework.

[1 mark]

c) You want to create a new controller called StudentsController to display all student details. Explain how you would do this.

[1 marks]

d) When you click the title of Last name column, you need to sort data in the table. Explain how you would do it.

[2 mark]