National College of Ireland

Higher Diploma in Science in Computing – Part-time – Year 2 – HDCICTOA/B
Higher Diploma in Science in Computing – Part-time – Year 1 – January Start – HDMAICTJANO

Semester One Examinations – 2017/18

Saturday 6th January 2018
2.00pm – 4.00pm

_____

Server Side Development

Dr. Dave Lewis
Mr. Liam McCabe

Answer ALL THREE QUESTIONS

Duration of exam: 2 Hours
Attachments: N/A

Question 1 [40 Marks]

a) MVC is an important architectural pattern used in most Web Application frameworks. Describe briefly the MVC pattern including with a visual aid how each layer interacts with one another. **[15 Marks]**

b) What functions do the following rails commands perform **[5 marks]**
   I. rails s –b $IP –p $PORT
   II. rails new hello_app
   III. bundle install
   IV. gem install rails –v 5.1.2
   V. rails generate scaffold Items title:string description:text image_url:string price:decimal brand:string

(1 mark each)

c) The following piece of code is a guessing number game called game.rb. Please state what each line of code is doing and what command runs the ruby object **[20 Marks]**

```
1)  puts "Enter your name"
2)  name = gets.chomp
3)  puts "Hello #{name}"
4)  target = rand(1..100)
5)  10.downto(1) do |count|
6)  puts "Please guess a number. You have #{count} guesses left"
7)  numberOfGuesses = 11 - count
8)  guess = gets.to_i
9)  if (guess == target) then
10) puts "Good job, #{name}! You guessed my number in #{numberOfGuesses} guesses!"
11) break
12) elsif (guess < target) then
13) puts "Oops. You guess was LOW."
14) else
15) puts "Ooops. Your guess is HIGH."
16) end
17) end
18) puts "Game over #{name}"
```

Question 2 Web Frameworks [30 Marks]

a) What is a web application framework (WAF)? Mention the key characteristics of web application framework. Give four examples of WAF's **[15 Marks]**

b) What criteria must you consider before choosing a web framework? **[15 Marks]**

Question 3 Web Services/REST [30 Marks]

a) For an application to be RESTful it must fulfil all the constraints of the REST Architectural Style. Detail the characteristics of a REST Architectural Style. **[15 Marks]**

b) Give the shortcut used to produce the standard CRUD RESTful routes (i.e. declare a resourceful route) for a Photos model in Rails routing and how it is generated. List the 7 routes created by the shortcut and what they do. **[15 Marks]**