DUBLIN INSTITUTE OF TECHNOLOGY

DT211C BSc. (Honours) Degree in Computer Science (Infrastructure)

Year 3

DT228 BSc. (Honours) Degree in Computer Science

Year 3

SUMMER EXAMINATIONS 2017/2018

INTRODUCTION TO DEV OPS [CMPU3056]

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MONDAY 14TH MAY   2.00 P.M. – 4.00 P.M.

TWO HOURS

ANSWER ALL QUESTIONS.

ALL QUESTIONS CARRY EQUAL MARKS.

1. (a) The acronym **CAMS** is used when describing the DevOps process. Explain what the acronym stands for and provide a description for each term.

(4 x 5 marks)

2. (a) A company develops a search engine for finding recipes called "Grub Search". Developers are rewarded for shipping new features. Developers want operations to push out new releases as quickly as possible. Sometimes, when releases go out, the production systems slow down. This results in increased loads, user visible latency, timeouts and increase workload on support. Operations respond by installing additional servers.
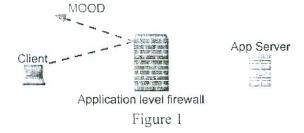
(i) What are the causes of the production problems? (5 marks)

(ii) Will the additional servers solve the problem? (5 marks)

(b) A company develops communication software to allow users to send text chat messages. Users sometimes send strange messages that cause the servers to crash The Ops team calls these "messages of oncoming doom (MOOD)". Ops tries to get development to provide a fix for the bug. Devs are usually busy writing new features.

In order to keep the servers up, Ops puts an application level firewall in place to filter out bad messages (Figure 1)

Figure 1

A new video feature is added and everything is working fine in the development environment. However, the feature isn't working for the user. As it turns out the firewall rule for the MOOD message is also blocking traffic for the video media.

(i) What are the causes of the deployment problem?

(10 marks)

3. (a) (i) With the aid of diagram describe the following DevOps environments
- Use of a Golden Image
- Use of a Configuration management system

(2 x 5 marks)

(ii) Golden Image and Configuration Management environments are considered to be solutions to DevOps environmental problems. Describe both with reference to the following:
- Initial workload
- Image size
- Startup speed
- Maintenance
- Combined approach

(10 marks)

4. (a) Describe the following **roles** and **perspectives** in relation to DevOps:
- Developer
- Operations
- Product Managers
- Security Team
- Business Management

(5 x 4 marks)

5. (a) (i) In relation to DevOps, describe what is meant by **Production Canaries**.

(5 marks)

(ii) In relation to DevOps, what does **Continuous Integration** mean?

(5 marks)

(iii) A student is creating a development environment using Ubuntu Server 16.04LTS with VirtualBox. She installs and configures the base image and then clones it multiple times. While the base image had network connectivity, the clones do not. Identify the probable cause and recommend a solution.

(5 marks)

(iv) When trying to fix a bug in code, it is good to know where it was first introduced. What git command may help with this? What does this command do and how is it used?

(5 marks)