University of London International Programmes

Computing and Information Systems/Creative Computing

CO1110 Introduction to Computing and the Internet

Coursework assignment 2 2017-18

This coursework assignment consists of three questions. Full marks will be awarded for complete answers to all three questions. The marks for each part of a question are indicated at the end of the part in [.] brackets.

There are 100 marks available from this coursework assignment.

Your coursework should be submitted as a single PDF file, using the following file-naming conventions:

YourName_SRN_COxxxxcw#.pdf (e.g. MarkZuckerberg_920000000_CO1110cw2.pdf)

- ***YourName** is your full name as it appears in your student record (check your student portal);*
- ***SRN** is your Student Reference Number, for example 920000000;*
- ***COXXXX** is the course number, for example CO1110; and*
- ***cw#** is either cw1 (coursework 1) or cw2 (coursework 2).*

You should read the CO1110 subject guide and recommended reading for this course before completing this coursework assignment. In addition, you should also consult appropriate library and internet resources. It is important that your submitted assignment is your own individual work and, for the most part, written in your own words. You must provide appropriate in-text citation for both paraphrase and quotation, with a detailed reference section at the end of your assignment (this should not be included in any word count). Copying, plagiarism and unaccredited and wholesale reproduction of material from books or from any online source is unacceptable, and will be penalised (see our guide on how to avoid plagiarism on the VLE).

Question 1

(a) Describe the cumulative ACK process used in the Transmission Control Protocol (TCP). [7.5 marks]

(b) When the TCP receiver gets a packet that is out of order, it acknowledges again the last correctly received packet. How does this help to detect missing packets? [7.5 marks]

(c) Describe the other method the TCP protocol uses to detect missing packets. [7.5 marks]

(d) Give a reason for inefficiently in the cumulative ACK process from the original TCP protocol. [7.5 marks]

Question 2

A network administrator with an IP address of 192.168.67.0 wishes to apply a subnet mask such that each subnet will have at least 25 hosts.

(a) What is the category of this network address? How many bits of the address are reserved for the network, and how many for the host? [5 marks]

(b) What subnet mask should she use in order to have the most possible subnets? Justify your answer. [10 marks]

(c) How many total usable hosts are there with your chosen subnet mask? Justify your answer. [5 marks]

(d) Give the CIDR notation for the network. [5 marks]

(e) Give the address of each subnet, the corresponding range of usable host addresses, and the broadcast address (give your answers in decimal notation). [15 marks]

Question 3

What advantages and disadvantages do you see in the Internet of Things (IoT)? Describe any and all security issues that you consider currently need addressing in the IoT. [30 marks]

Write between 800 and 1,000 words.

[Total 100 marks]

[END OF COURSEWORK ASSIGNMENT 2]