University of London International Programmes
CO1110 – Introduction to computing and the Internet
Coursework assignment 2
2016–2017

This coursework 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 on this coursework assignment.

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

FamilyName_SRN_COxxxxcw#.pdf (e.g. Zuckerberg_920000000_CO1110cw2.pdf)

- o ***FamilyName*** *is your family name (also known as last name or surname) as it appears in your student record (check your student portal)*
- o ***SRN*** *is your Student Reference Number, for example 920000000*
- o ***COXXXX*** *is the course number, for example CO1110, and*
- o ***cw#*** *is either cw1 (coursework 1) or cw2 (coursework 2).*

Question 1

a) Give a detailed explanation of the Von Neumann architecture.

[10 marks]

b) Explain how the cache memory is used to improve computer performance.

[10 marks]

c) Explain how TCP handles error control and flow control.

[10 marks]

d) A computer uses 32-bit byte addressing. The computer uses a 2-way associative cache with a capacity of 32KB. Each cache block contains 16 bytes. Calculate the number of bits in the TAG, SET, and OFFSET fields of a main memory address.

[10 marks]

[Total 40 marks]

Question 2

a) Explain how subnetting addresses the problem of computer network shortages.

[5 marks]

b) A company with a network address of 192.157.129.0 wants to segment the network into 18 different subnets.

    I.   What subnet mask is needed? Justify your answer.

[5 marks]

    II.   Give the CIDR notation for the network.

[5 marks]

    III.   Find the number of bits used to represent a host, and the number of usable hosts per subnet.

[5 marks]

    IV.   Give the address of the first and last usable subnet.

[7 marks]

    V.   Write down the range of host addresses in the first subnet.

[8 marks]

[Total 35 marks]

Question 3

a) Explain the shortcomings of the Computer Misuse Act 1990 in the fight against computer misuse offences. Explain how the UK Police and Justice Act 2006 addresses these shortcomings.

[25 marks]

[Total 100 marks]

[END OF COURSEWORK ASSIGNMENT 2]