

IY5512: Coursework 0

If feedback is required, coursework solutions must be submitted electronically via the course Moodle page. The deadline for receipt of submissions is 23:59 UK time on Friday 9/10/15. Coursework submissions should normally be in the form of a single pdf file. If you use Word, a free add-on to enable you to save a document in pdf format can be obtained from the Microsoft web site. Take care to ensure that you include your full name on the first page of your submission, the course number (IY5512), and the coursework number.

These questions are designed to test and extend your understanding of Part 0 of the course material. Please note that questions 6-8 are relevant to the course, but the answers have not been covered in the course slides. However, finding the answers should be relatively simple using the Internet or a textbook.

1. Convert 345 (in decimal representation) to binary and hexadecimal representations.
2. Convert FD4 (in hexadecimal) to binary and decimal representations.
3. What are the advantages and disadvantages of using a compiled language by comparison with an interpreted language?
4. When referring to computer memory, what is a word? What is the difference between a word for a 32-bit machine and a word for a 64-bit machine?
5. What is the maximum usable amount of main memory (in principle) for a 32-bit machine?
6. In the context of computer security, what is a sandbox? Outline the security advantages of running code in a sandbox.
7. What is multithreading?
8. Give a formal definition of the term **partially ordered set**¹. A **chain** (or **totally ordered set**) is a special type of partially ordered set – what is the special property of a chain? Give a simple example of a partially ordered set that is not a chain.

¹ This may seem a rather abstract question, but we need to use the notion of a partially ordered set when we discuss information flow based access control.