Higher Computer Systems – Exam Style Revision Questions (34 marks)

1. Describe how the number of cores affect the computer system performance **(2)**

2. Describe the concepts of the fetch and execute cycle **(4)**

3. Describe the environmental impact of an intelligent heating system **(2)**

4. Convert the following denary numbers to binary
   a. 0001 1111 b. 1101 0110 **(2)**

5. For only positive numbers what is the **range** of numbers that can be represented using 16 bits? **(2)**

6. Show the Twos Complement representation of the following Integers

   a. 51 b. -120 **(2)**

7. What is the range of **Integers** that can be represented using

   a. 8 bits twos complement? b. 16 bits twos complement **(2)**

8. In floating point representation, what determines the
   a. **accuracy** of the number b. range of the number **(2)**

9. State two ways of improving processor performance and explain how it improves processor performance. **(4)**

10. Describe the benefits of intelligent car management systems on the environment. **(2)**

11. Write the binary number 110.001 using floating-point representation. There are 16 bits for the mantissa (including the sign bit) and 8 bits for the exponent. **(3)**

12. Write the binary number −0.0101 using floating-point representation. There are 16 bits for the mantissa (including the sign bit) and 8 bits for the exponent. **(3)**

13. Describe how encryption is used to ensure the safe transmission of data. **(2)**

14. Explain how a digital signature works to ensure a document sent is secure. **(2)**