

## 2004 Paper 1 Question 11

### Operating Systems

- (a) What was the key innovation of the *von Neumann Architecture*? [2 marks]
- (b) Describe (with the aid of a diagram where appropriate) the representation in main memory of:
- (i) an unsigned integer; [2 marks]
  - (ii) a signed integer; [2 marks]
  - (iii) a floating point number; [4 marks]
  - (iv) an instruction. [4 marks]
- (c) Does an operating system need to know whether the contents of a particular register represent a signed or unsigned integer? Justify your answer. [2 marks]
- (d) Describe what occurs during a *context switch*. [4 marks]