Compiler Construction

(a) Garbage Collection.

(i) Explain how it is possible to “leak memory” using a reference counting garbage collector. [3 marks]

(ii) Describe any technique that might be used to address this problem. [3 marks]

(b) Explain in detail how we might translate code generated for a stack-only machine (such as the JVM) to a register-based machine (such as ARM). [6 marks]

(c) Describe in detail how static and dynamic methods are compiled differently for object-oriented languages with single inheritance. [8 marks]