

2011 Paper 3 Question 3

Programming in C and C++

In this question, where appropriate, you may use a short fragment of code to complement your explanation.

- (a) What is the difference between declaration and definition?
- (b) Describe the layout of the memory components: Dynamic Memory Allocation, Data Segment, Code Segment and Stack. You may use an illustration as part of your explanation.
- (c) Using an example, explain what *stack unwinding* is in C++.
- (d) How may I use template meta programming to inline recursive functions?
- (e) Why did the designers of the C++ language decide to make an empty class 1 byte in length?

[4 marks each]