

2 Programming in C and C++ (AVSM)

- (a) Consider *unspecified behaviour* in C.
- (i) Define what unspecified behaviour means in the C standard and give two examples of such behaviour. [3 marks]
 - (ii) Briefly explain why it is important to have unspecified behaviour in the definition of the C language. [1 mark]
- (b) Compare and contrast the `struct` and `union` keywords in C, supplying an example of a situation where it would be more appropriate to use a `union` rather than a `struct`. [4 marks]
- (c) Explain the following C or C++ language concepts. You may find it helpful to use short code fragments or diagrams to illustrate your answer.
- (i) The `virtual` keyword used to qualify a C++ member function and its impact on generated code. [4 marks]
 - (ii) The role of the C preprocessor in the source-code compilation cycle, and why it is a useful tool for debugging. [4 marks]
 - (iii) Templated functions in C++, giving one benefit and one drawback of using them compared with using a `void*` function in C. [4 marks]