

SOLUTION NOTES

As submitted to the Examiners in January 2001.

Java 2001 Paper 1 Question 3 (ACN)

Options where protected might appear are public, private and nothing, where nothing indicates “package” visibility. If a member of a class is declared as protected then it may be accessed (a) from within that class (b) from other classes in the same package and (c) from classes, even if in other packages, that extend this class. A major use is in a class that goes in a library, and is defined in a package associated with the library. The item concerned at first seems to want to be private since it does not make sense to access it from outside. However, to allow the end-user to be able to customise the functionality by writing a derived class (overriding some methods) that class extension needs to access the item/method.

This is not useful for small own-use programs because if something is small it is not liable to involve multiple packages, so the special nature of protected does not make sense.