Programming in Java (Section A) 2005 – Paper 1 Question 3 (10 marks, ACN)

(*a*) `private`: access only permitted by members of the class itself (eg and not any derived classes)

[package visibility]: access from any class that is in the same package, where as a rough approximation "package" might mean "source files live in same directory". This can correspond to a major component of a project.

`protected`: as package visibility, plus you can access even from another package if you are in a class that is extending this one.

`public`: anybody anywhere can access it.

These are useful to give a fairly refined level of control over access to fields and methods, which helps hide information and support good software engineering.

(*b*) If the constructor in the parent is private then you can not access it and so you can not write a constructor for the new class. The effect seems to be similar to making the parent class final!

If the parent constructor has package visibility it means you can only extend it when making a new class within the same package.

If the parent constructor is protected you can extend the class from anywhere, even in another package.

Public is equally flexible.

(*c*) A static method in the class can call the constructor and hence make an instance of the class.