

4 Object-Oriented Programming (RKH)

- (a) Give four advantages of Java's checked exceptions over return values for error indication. [4 marks]
- (b) Comment on the appropriate use of Java's checked exceptions within `public`, `protected` and `private` methods. [6 marks]
- (c) Consider a method that can encounter at least two errors (*Error1* and *Error2*). Compare and contrast the following approaches to providing exceptions for these errors.
- (i) `throw new MethodError()`, where `MethodError` is a direct subclass of `Exception`.
 - (ii) `throw new Exception()` for both errors.
 - (iii) `throw new MethodError(errortype)`, where `MethodError` directly subclasses `Exception` and contains state recording which error occurred (initialised by parameter `errortype`).
 - (iv) `throw new Error1()` and `throw new Error2()`, where `Error1` and `Error2` directly subclass `MethodException`, which directly subclasses `Exception`.
 - (v) `throw new Exception("Error1")` and `throw new Exception("Error2")`.
 - (vi) `throw new Error1()` and `throw new Error2()`, where the classes `Error1` and `Error2` directly subclass `Exception`.

[10 marks]