

## 2008 Paper 6 Question 4

### Concurrent Systems and Applications

- (a) What are *Class Literals* in the context of generics in Java? [2 marks]
- (b) Under what circumstances might *type erasure* occur in a Java program that uses generics? Illustrate your answer with sample Java code. [4 marks]
- (c) Consider the two overloaded methods shown below. Is it valid to have these overloaded methods in a Java class? Explain your answer.

```
public static <T extends Long>
    void myMethod(List<T> x)
{
    // ...
}

public static <S extends String>
    void myMethod(List<S> x)
{
    // ...
}
```

[5 marks]

- (d) Consider two class definitions: A, and B which extends A. In the context of the relationship between the types A[] and B[], explain the difference between covariance and contravariance. Is Java covariant or contravariant? [4 marks]
- (e) If a field is declared with `protected` access, from where can it be accessed? Is there any situation in which a `private` field defined on some class A can be accessed but a `protected` field defined on A cannot? [5 marks]