

2010 Paper 5 Question 9

Further Java

Consider the following client program extract:

```
1 Socket s = new Socket("localhost",10000);
2 ObjectInputStream ois = new ObjectInputStream(s.getInputStream());
3 Object o = ois.readObject();
4 Class c = o.getClass();
5 for(Field f : c.getDeclaredFields())
6     System.out.println(f.get(o));
7 c.getMethod("run").invoke(o);
```

- (a) Describe the execution of this extract, assuming that no exceptions are thrown. [5 marks]
- (b) Identify **five** distinct exceptions that may occur during execution of the client program extract. Your answers should include the line number at which the exception would be thrown and a brief description of the problem which would cause it. General virtual machine errors such as `OutOfMemoryError` or `StackOverflowError` should not be included in your answer. [2 marks each]
- (c) Write a server program extract that is capable of communicating successfully with the client extract shown above. You should assume the existence of an `Object` variable called `sendMe` which contains the object to be sent to the client. You do not need to write any error handling code. [5 marks]