## 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]