

1 Java full

Explain how to set up a new sort of Java Exception called (say) "MyException". Describe the syntax associated with both causing such exceptions to be activated and with responding to occurrences of them. Do any special issues arise if an exception is to be used as a way of exiting through multiple layers of procedures, for instance if the exception will be activated from deep within a nest of calls of a pair of mutually recursive methods?

[10 marks]

There are Java classes (each with a constructor) called `File`, `FileInputStream`, `InputStreamReader`. In the last of these there is a method `read()` which returns the integer code of the next Unicode character from the stream it represents. All the IO functions can raise some sub-class of `IOException`. Write code that counts the number of characters and lines in a file and displays those to `System.out`.

[10 marks]

1.1 Marking notes

```
class MyException extends Exception {};
```

```
try {b1} catch (MyException e) {b2} finally {b3}
```

```
int recurse1(int a) throws MyException {...}
```

```
try
{ File f = new File("filename");
  FileInputStream f1 = new FileInputStream(f);
  InputStreamReader f1 = new InputStreamReader(f1);
  int c = 0, l = 0;
  try
  { int k = f2.read();
    c++;
    if (k == '\n') l++;
  }
  catch (IOException e)
  {
  }
}
catch (IOException e)
{ // I ignore it!
}
System.out.println(n + " " + l);
```