

2001 Paper 13 Question 7

Compiler Construction

- (a) Describe one possible structure (e.g. ELF) of an object file. Illustrate your answer by considering the form of object file which might result from the following C program.

```
int a = 1, b = -1;
extern int g(int);
extern int c;
int f() { return g(a-b) + c; }
```

It is not necessary to consider the exact instruction sequence, just issues concerning its interaction with the object file format. [10 marks]

- (b) Describe how a linker takes a sequence of such programs and produces an executable file. [4 marks]
- (c) Compare and contrast *static* and *dynamic* linking in a system using your object file format. [6 marks]