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3C03 Concurrency
Compulsory Coursework (1 of 3)

To be handed in to G14
Deadline: Monday 12 November 2001, 12:00am

Question 1.1 (Total 10 marks)

Consider the following FSP specification

```
SERVER = (acquire -> release -> SERVER).
CLIENT = (s.acquire-> use -> s.release->CLIENT).
||CLIENT_SERVER = (a:CLIENT||b:CLIENT||{a,b}::s:SERVER).
```

What are the Alphabets of
1. SERVER (2 marks),
2. CLIENT and (2 marks),
3. CLIENT_SERVER? (6 marks)

Question 1.2 (Total 10 marks)

Consider the following FSP specification.

```
A=(d->b->A).
B=(a->b->B).
||C=(A||B).

D=(d->a->b->D
  |a->d->b->D).
```

Prove that C and D describe the same behaviour.

Question 1.3 (Total 13 marks)

Consider a stack of fixed capacity. The stack has two operations, push and pop. Use FSP to model the behaviour of a stack in such a way that your stack process guarantees that never more elements are popped from the stack than have previously been pushed onto it.