

Tutorial 3

1. What are the benefits and the disadvantages of each of the following? Consider both the system level and the programmer level.
 - a. Synchronous and asynchronous communication
 - b. Automatic and explicit buffering
 - c. Send by copy and send by reference
 - d. Fixed-sized and variable-sized messages
2. With respect to the RPC mechanism, consider the "exactly once" semantic. Does the algorithm for implementing this semantic execute correctly even if the ACK message back to the client is lost due to a network problem? Describe the sequence of messages and discuss whether "exactly once" is still preserved.
3. Palm OS provides no means of concurrent processing. Discuss three major complications that concurrent processing adds to an operating system.
4. Describe the actions taken by a kernel to context-switch between processes.
5. Including the initial parent process, how many processes are created by the following program.

```
#include <stdio.h>
#include <unistd.h>

int main()
{
    /* fork a child process */
    fork();

    /* fork another child process */
    fork();

    /* and fork another */
    fork();

    return 0;
}
```