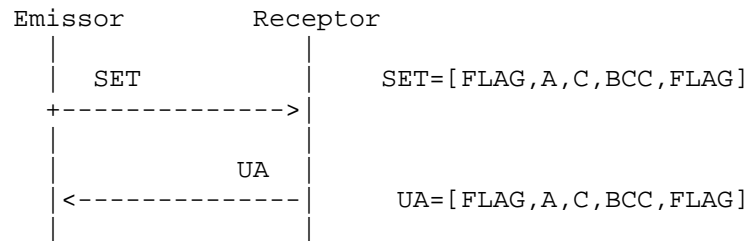
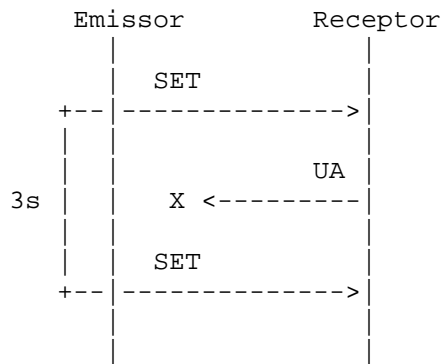


# Estabelecimento da ligação lógica

1. Implementar o estabelecimento da ligação lógica (ver guião do primeiro trabalho laboratorial).



2. Implementar o mecanismo de retransmissão, do lado do Emissor, com *time-out*.



- Quando o Receptor não responde (ou o Emissor não recebe uma resposta válida), o Emissor reenvia trama SET ao fim do intervalo de *time-out* configurado (por exemplo, 3 s) e retransmite no máximo 3 vezes.
- Usar a função `alarm` (`man alarm`) – exemplo de código em `alarme.c` (ver Documentação do 1º trabalho)

**Nota:** A leitura de caracteres da porta série no modo não canónico pode ser controlada por meio de dois parâmetros, conforme se descreve a seguir (extraído de “Serial-Programming-HOWTO”, disponível na Documentação do 1º trabalho):

## Non-Canonical Input Processing

In non-canonical input processing mode, input is not assembled into lines and input processing (erase, kill, delete, etc.) does not occur. Two parameters control the behavior of this mode: `c_cc[VTIME]` sets the character timer, and `c_cc[VMIN]` sets the minimum number of characters to receive before satisfying the read.

- If  $MIN > 0$  and  $TIME = 0$ ,  $MIN$  sets the number of characters to receive before the read is satisfied. As  $TIME$  is zero, the timer is not used.
- If  $MIN = 0$  and  $TIME > 0$ ,  $TIME$  serves as a timeout value. The read will be satisfied if a single character is read, or  $TIME$  is exceeded ( $t = TIME * 0.1$  s). If  $TIME$  is exceeded, no character will be returned.
- If  $MIN > 0$  and  $TIME > 0$ ,  $TIME$  serves as an inter-character timer. The read will be satisfied if  $MIN$  characters are received, or the time between two characters exceeds  $TIME$ . The timer is restarted every time a character is received and only becomes active after the first character has been received.
- If  $MIN = 0$  and  $TIME = 0$ , read will be satisfied immediately. The number of characters currently available, or the number of characters requested will be returned.

By modifying `newtio.c_cc[VTIME]` and `newtio.c_cc[VMIN]` all modes described above can be tested.