suitable then a larger sample would show a better fit; a larger sample should therefore be taken.

The variance of each data set should be equal in theory; in practice a difference of factor three or less is acceptable. The variances of the two samples are different by a factor of much less than three, so this assumption would appear acceptable. Independence? 2/3

iii)

```
t2test(pch,pnc)
    t = -4.028       df = 119
    SP (obtained direction) = 4.973e-005
    SP (opposite direction) = 4.973e-005
    SP (total) = 9.946e-005
```

The significance probability is very small, hence the null hypothesis, that the mean difference is zero, or that the two samples arise from the same population is rejected. There is a difference in the level of the detected hormone between patients suffering from these conditions. For these two samples at least, a differential diagnostic test would seem a valid tool ~~with which~~ to decide a treatment.

5/5

c) We can model the null distribution of T_1, the accidents in the first half of last year by the binomial distribution $T_1 \sim B(t, n_1/(n_1+n_2))$ where t is the total number of accidents, and n_1 and n_2 are the number of observations on each period respectively

$T \sim B(t, n_1/(n_1+n_2))$

$= B(18, 6/(6+2)) = B(18, 3/4)$.