

Question 35

- (a) To compare the scores of two matched groups, one might use a sign test or a Wilcoxon signed rank test. State one shortcoming of the sign test.
- (b) A Wilcoxon signed rank test on 53 differences produced a test statistic of $w_+ = 302$. Would this give us justification for rejecting the hypothesis that the two samples arose from identical distributions? Show any calculations that you carry out.

[4]

The size of the differences are lost

$$4 + (715.5, 2866)$$

$$\frac{306 - 715.5}{\sqrt{12760}} = -3.7$$

Yes

$$E(x) = \frac{n(n+1)}{2} = \frac{54 \times 53}{2} = 715.5$$

$$V(x) = \frac{n(n+1)(2n+1)}{24} = \frac{53 \times 54 \times 107}{24} = 12760$$

$$Z = \frac{715.5 - 302}{\sqrt{12760}} = 3.66$$