The manager of a technology company $A$ claims that his employees earn more per year than the employees at technology company $B$. The amounts earned per year, in hundreds of dollars, by a random sample of 12 employees from company $A$ and an independent random sample of 12 employees from company $B$ are shown below.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Company $A$ | 461 | 482 | 374 | 512 | 415 | 452 | 502 | 427 | 398 | 545 | 612 | 359 |
| Company $B$ | 454 | 506 | 491 | 384 | 361 | 443 | 401 | 472 | 414 | 342 | 355 | 437 |

**(a)** Carry out a Wilcoxon rank-sum test at the 5% significance level to test whether the manager's claim is supported by the data. [9]

**(b)** Explain whether a paired sample $t$-test would be appropriate to test the manager's claim if earnings are normally distributed. [1]