

The weekly salaries of employees at two large electronics companies,  $A$  and  $B$ , are being compared. The weekly salaries of an employee from company  $A$  and an employee from company  $B$  are denoted by  $x$  and  $y$  respectively. A random sample of 50 employees from company  $A$  and a random sample of 40 employees from company  $B$  give the following summarised data.

$$\Sigma x = 5120 \quad \Sigma x^2 = 531\,000 \quad \Sigma y = 3760 \quad \Sigma y^2 = 375\,135$$

- (i) The population mean salaries of employees from companies  $A$  and  $B$  are denoted by  $\mu_A$  and  $\mu_B$  respectively. Using a 5% significance level, test the null hypothesis  $\mu_A = \mu_B$  against the alternative hypothesis  $\mu_A \neq \mu_B$ . [8]
- (ii) State, with a reason, whether any assumptions about the distributions of employees' salaries are needed for the test in part (i). [1]