| 10 | (i) | | Only 784 trees and 810 > 784 | E1 [1] | 2.4 | or other similar | |
| 10 | (ii) | | eg Each no. not independent of previous no.<br>Each no. is related to the next | E1 [1] | 2.3 | Allow 2nd digit of each no. is 1st of next<br>Consecutive nos share two digits<br><br><br>Ignore all else | or similar correct<br>Digits are re-used |

| | Question | | Answer | Mks | AO | Guidance | |
|---|---|---|---|---|---|---|---|
| 10 | (iii) | | $H_0$: $\mu = 4.2$ | **B1** | **1.1** | Allow other letters except $X$ or $\overline{X}$ | |
| | | | $H_1$: $\mu < 4.2$ where $\mu$ is mean height of trees (in the wood) | **B1** | **2.5** | One error, eg undefined $\mu$ or 2-tail: B0B1 | |
| | | | $\overline{X} \sim N(4.2, \frac{0.8^2}{50})$ and $\overline{X} < 4.0$ or $\overline{X} \le 4.0$ | **M1** | **3.3** | Stated or implied<br>Allow $\overline{X} > 4.0$ or $\overline{X} = 4.0$ | $\phi^{-1}(0.98)$ (= 2.054) |
| | | | $P(\overline{X} < 4.0) = 0.038549....$ or 0.039 | **A1** | **3.4** | **BC** Allow 0.038<br>NB 0.038... implies M1A1 | $4.2 - 2.054 \times \frac{0.8}{\sqrt{50}}$<br>(= 3.968) |
| | | | Compare 0.02 | **A1** | **1.1** | dep $P(\overline{X} < 4.0)$ attempted | comp their 3.968 with 4.0 |
| | | | Do not reject $H_0$ | **M1** | **2.2b** | Allow Accept $H_0$<br>dep $P(\overline{X} < 4.0)$ attempted | Can be implied by conclusion |
| | | | There is insufficient evidence that mean height of these trees in the wood is less than 4.2m. | **A1f** | **3.5a** | In context, not definite; eg "Mean height not less than 4.2m": A0 | |
| | | | | **[7]** | | | |