



| Q  | Answer                                                                                                                                                                                                                                                                                                                                   | Marks |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1  | The left whisker should end at 15 (the shortest time), not 12; the median line should be at 38, not 34                                                                                                                                                                                                                                   | 2     |
| 2  | <b>a)</b> 19 minutes <b>b)</b> 12 minutes <b>c)</b> 26 minutes                                                                                                                                                                                                                                                                           | 3     |
| 3  | <b>a)</b> minimum 23, lower quartile 31, median 40, upper quartile 51, maximum 60<br><b>b)</b> box from 31 to 51, median line at 40, whiskers to 23 and 60                                                                                                                                                                               | 3     |
| 4  | <b>a)</b> 11 <b>b)</b> lower quartile 6, upper quartile 16 <b>c)</b> 10                                                                                                                                                                                                                                                                  | 3     |
| 5  | <b>a)</b> range 38, interquartile range 16 <b>b)</b> 50% <b>c)</b> 30                                                                                                                                                                                                                                                                    | 4     |
| 6  | <b>lowest)</b> 12 <b>lower quartile)</b> 20 <b>median)</b> 29 <b>upper quartile)</b> 38<br><b>highest)</b> 45                                                                                                                                                                                                                            | 3     |
| 7  | <b>a)</b> 5, 12, 18, 25, 41 <b>b)</b> box from 12 to 25, median line at 18, whiskers to 5 and 41<br><b>c)</b> 20                                                                                                                                                                                                                         | 5     |
| 8  | Class B had the higher median (54 against 50), so typically scored higher. Class B had the smaller interquartile range (15 against 24), so its marks were more consistent.                                                                                                                                                               | 4     |
| 9  | <b>a)</b> £85<br><b>b)</b> Shop B has the higher median so its bikes cost more on average; Shop A has the larger IQR so its prices vary more<br><b>c)</b> Shop B - smaller interquartile range means more consistent prices                                                                                                              | 4     |
| 10 | <b>a)</b> box from 21 to 47, median line at 34, whiskers to 8 and 59 <b>b)</b> 45 <b>c)</b> 15                                                                                                                                                                                                                                           | 4     |
| 11 | <b>a)</b> 13 minutes <b>b)</b> 30<br><b>c)</b> A box plot gives only a five-number summary, so we assume exactly a quarter of the runners are above the upper quartile                                                                                                                                                                   | 4     |
| 12 | <b>a)</b> whiskers at 5 and 22, box 9 to 15, median at 12<br><b>b)</b> Girls' median lower (12 vs 14) so girls spent less time on average; girls' IQR smaller (6 vs 8) so girls' times were more consistent                                                                                                                              | 5     |
| 13 | <b>a)</b> whiskers at 2 and 32, box 10 to 22, median at 15 <b>b)</b> 15                                                                                                                                                                                                                                                                  | 5     |
| 14 | <b>a)</b> min 0.5, LQ approximately 3.75 (accept 3.5-4), median approximately 5.2 (accept 5-5.4), UQ approximately 6.8 (accept 6.5-7.1), max 9.5<br><b>b)</b> approximately 18 (accept 15-21)<br><b>c)</b> Monday's median is higher so Monday's parcels were heavier on average; Monday's IQR is larger so Monday's weights varied more | 6     |

|           |                                                                                                                                                                                                                                                                                                                           |   |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <b>15</b> | <b>a)</b> median 42, lower quartile 38, upper quartile 46<br><b>b)</b> Team A has the lower median so was faster on average; Team A has the smaller IQR so was more consistent                                                                                                                                            | 5 |
| <b>16</b> | <b>a)</b> Box drawn between min and max instead of between the quartiles; whiskers drawn at the quartiles instead of at min and max<br><b>b)</b> whiskers at 8 and 27, box 13 to 20, median at 16<br><b>c)</b> Model X has the higher median so lasts longer on average; Model X has the larger IQR so is less consistent | 5 |

Full worked solutions, written out by hand, are on the solutions sheet for this topic.