#### Section (a): Statistics

- 1 A bag contains 24 counters of which 6 are red, 8 are green and 10 are yellow. Three counters are taken from the bag at random without replacement.
  - (i) Show that the probability that 2 of the counters taken are green is  $\frac{56}{253}$ . [2]
  - (ii) Given that 2 of the counters are green, find the probability that the first counter taken is red. [3]
- 2 The probability that a boy hits a target is 0.8. Assuming that shots are independent of each other and suppose that during each practice period, the boy fires shots until he hits the target.
  - (i) Find the mean and standard deviation of the number of shots fired per practice period.
  - (ii) Find the probability that the boy will need to take at least five shots to hit the target. [2]
- 3 A coin is tossed 5 times. Use a binomial test, at 5% level of significance, to test whether the coin is biased towards heads if at least 4 heads are obtained. [5]
- 4 The following are television prices in dollars taken in 40 different shops.

40	130	170	240	360	520	170	130
240	360	520	120	2:2:0	170	330	480
160	290	200	120	480	160	210	330
70	140	180	260	370	90	150	200
280	450	80	420	190	140	270	120

- (i) Construct a stem and leaf diagram for the data. [3]
- (iii) Find
  - the median,
  - the quartiles.
- (iii) Draw a box and whisker plot.

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