6. Two boxes, A and B, each contain a large number of coins.

In box A

- there are only 1p coins and 2p coins
- the ratio of 1p coins to 2p coins is 1 : 3

In box B

- there are only 2p coins and 5p coins
- the ratio of 2p coins to 5p coins is 1 : 4

One coin is randomly selected from box A and two coins are randomly selected from box B

The random variable T represents the total of the values of the three coins selected.

(a) Find the sampling distribution of T

(7)

The random variable M represents the median of the values of the three coins selected.

(b) Find the sampling distribution of M

(4)

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Question 6 continued

(Total for Question 6 is 11 marks)