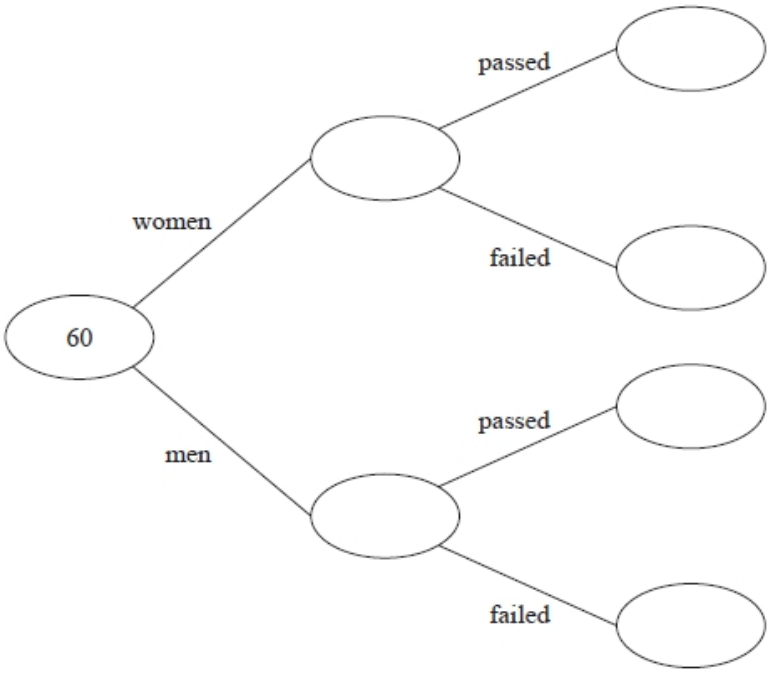
S115 Probability trees

Q1.

60 people each took a driving test one day.

21 of these people were women.
18 of the 60 people failed their test.
27 of the men passed their test.

(a) Use this information to complete the frequency tree.



(3)

One of the men is chosen at random.

(b) Work out the probability that this man failed his test.

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(2)

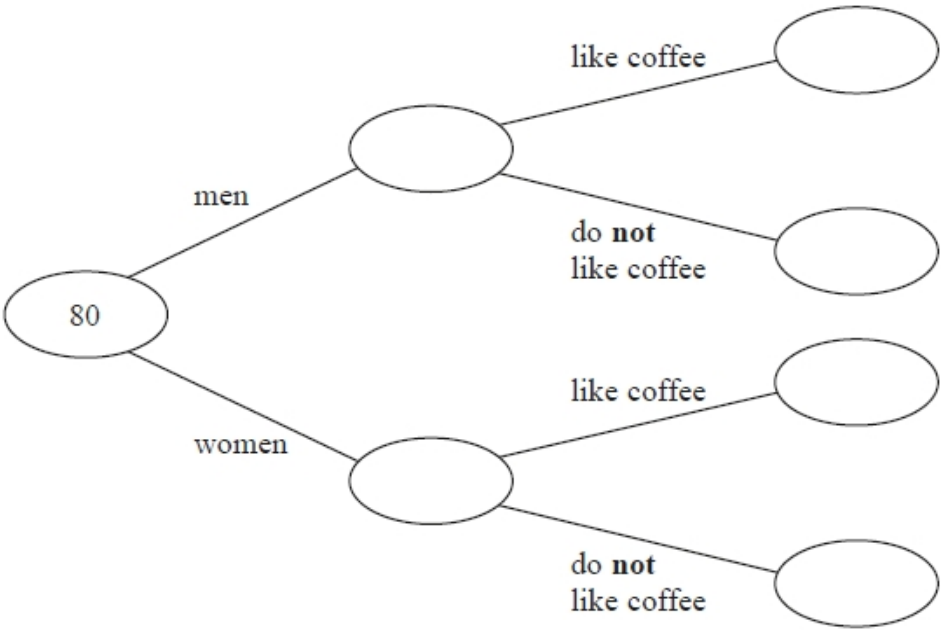
(Total for question = 5 marks)

Q2.

80 people are asked if they like coffee.

48 of these people are women.
61 of the 80 people like coffee.
8 of the men do **not** like coffee.

(a) Use this information to complete the frequency tree.



(3)

One of the people who like coffee is chosen at random.

(b) Find the probability that this person is a woman.

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(2)

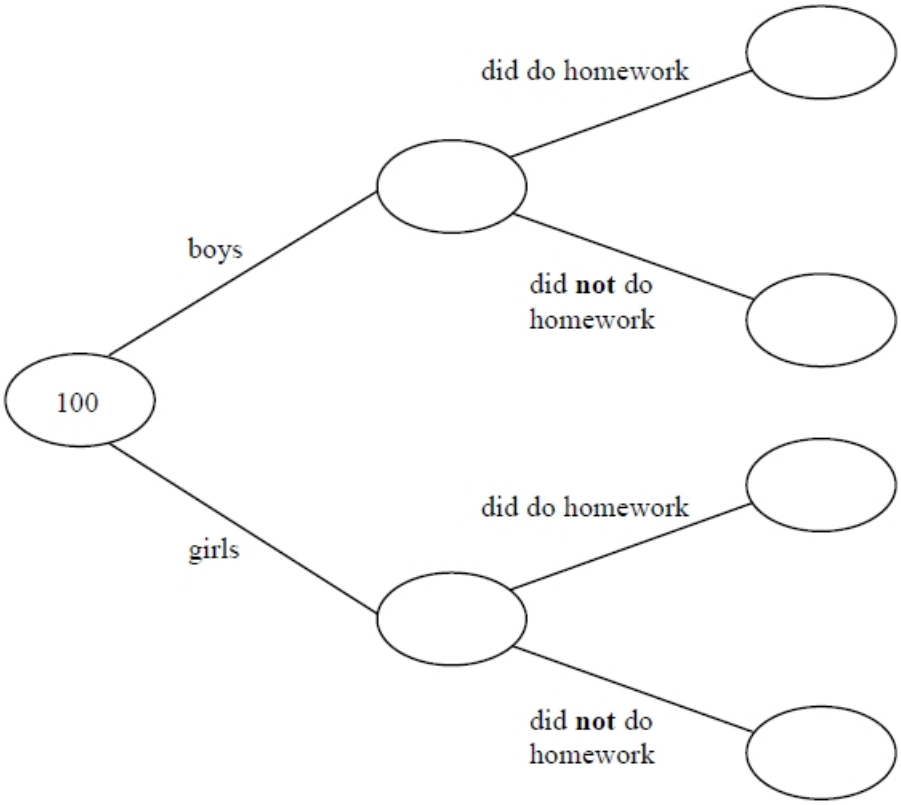
(Total for question = 5 marks)

Q3.

100 students had some homework.

42 of these students are boys.
8 of the 100 students did **not** do their homework.
53 of the girls did do their homework.

(a) Use this information to complete the frequency tree.



(3)

One of the girls is chosen at random.

(b) Work out the probability that this girl did **not** do her homework.

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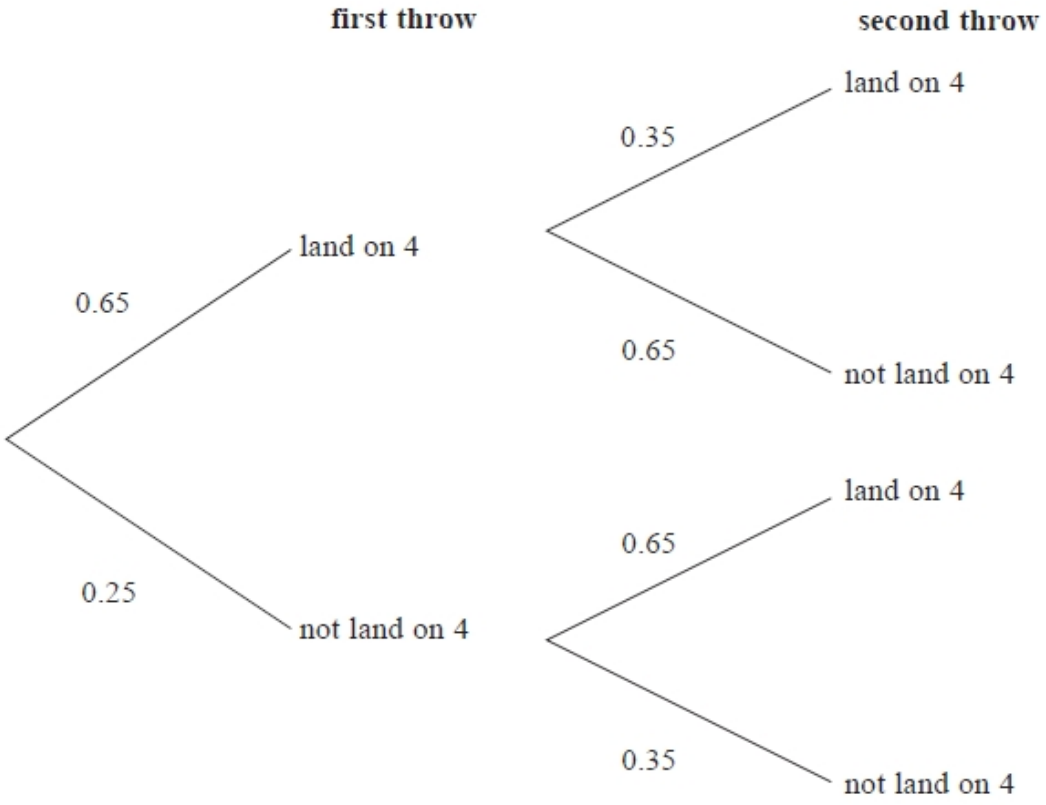
(2)

(Total for question = 5 marks)

Q4.

When a biased 6-sided dice is thrown once, the probability that it will land on 4 is 0.65
The biased dice is thrown twice.

Amir draws this probability tree diagram.
The diagram is **not** correct.



Write down **two** things that are wrong with the probability tree diagram.

1 .....

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2 .....

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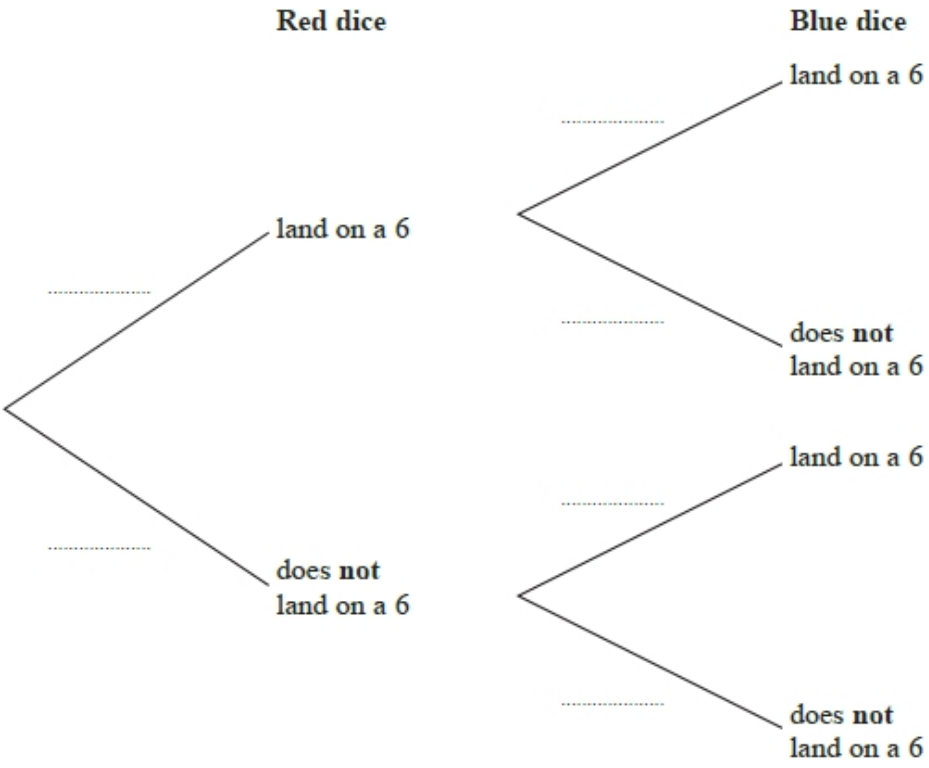
(Total for question = 2 marks)

Q5.

Graham has a fair red 6-sided dice and a fair blue 8-sided dice.
The red dice can land on 1, 2, 3, 4, 5 or 6
The blue dice can land on 1, 2, 3, 4, 5, 6, 7 or 8

Graham is going to roll both dice.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that neither dice will land on a 6

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(2)

(Total for question = 4 marks)

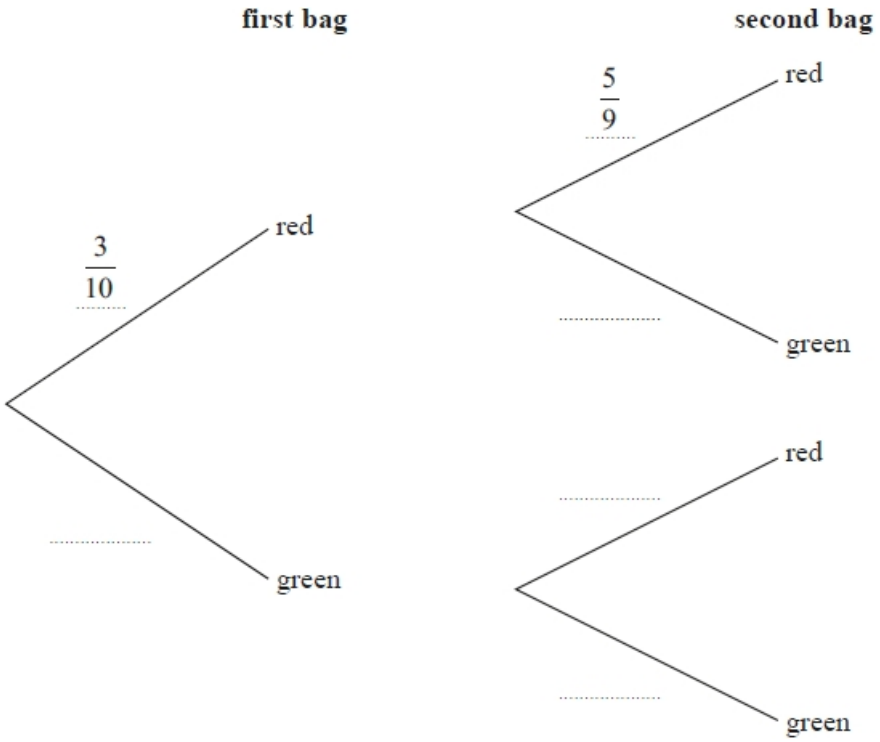
Q6.

Amina has two bags.

In the first bag there are 3 red balls and 7 green balls.
In the second bag there are 5 red balls and 4 green balls.

Amina takes at random a ball from the first bag.
She then takes at random a ball from the second bag.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Amina takes two red balls.

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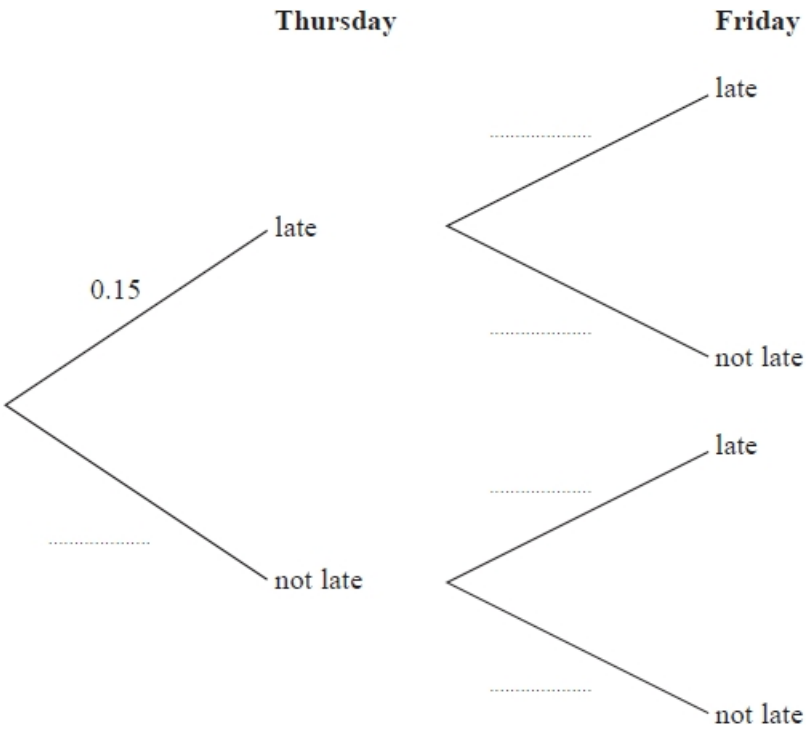
(2)

(Total for question = 4 marks)

Q7.

Mary travels to work by train every day.
The probability that her train will be late on any day is 0.15

(a) Complete the probability tree diagram for Thursday and Friday.



(2)

(b) Work out the probability that her train will be late on at least one of these two days.

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(3)

(Total for question = 5 marks)

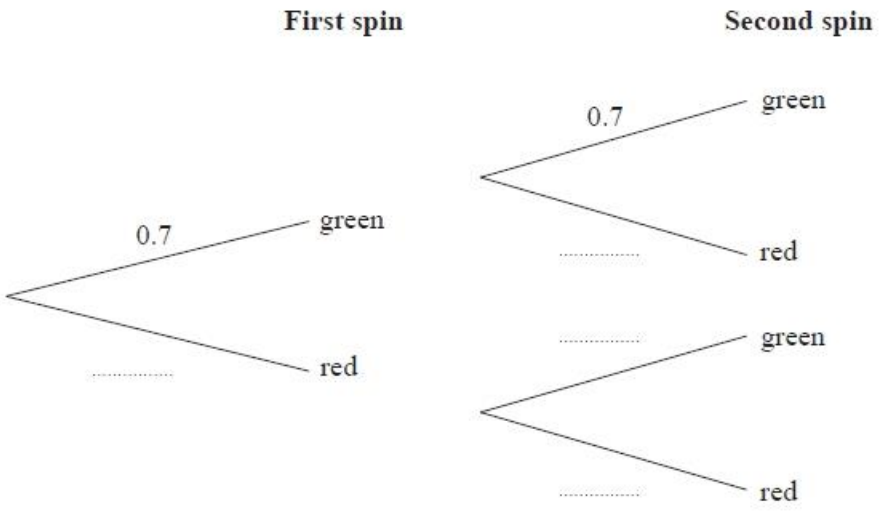
Q8.

Louise makes a spinner.

The spinner can land on green or on red.
The probability that the spinner will land on green is 0.7

Louise spins the spinner twice.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that the spinner lands on two different colours.

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(3)

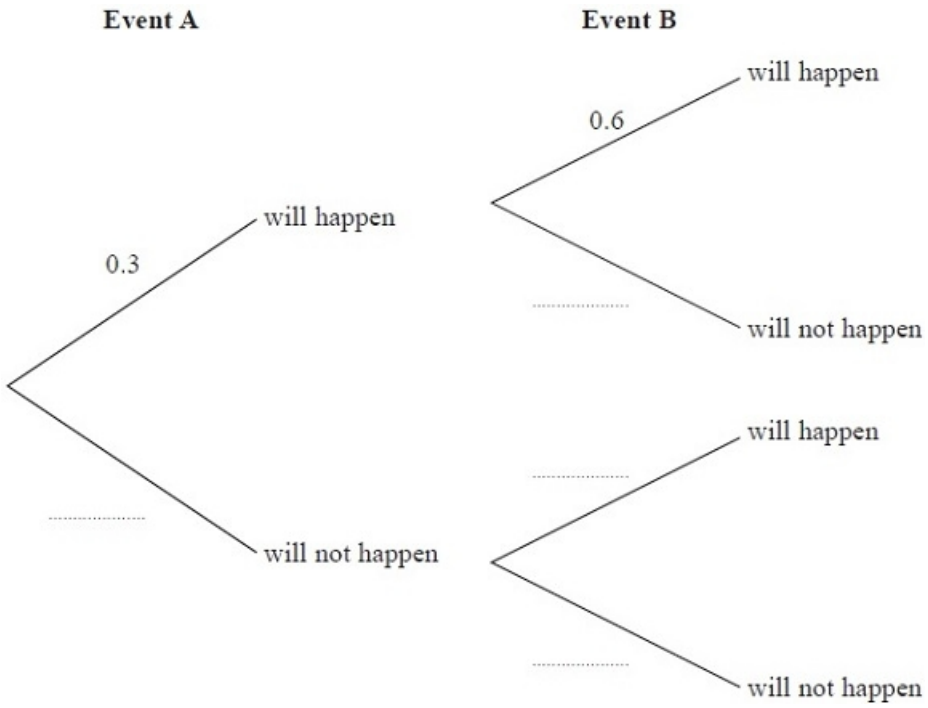
(Total for question = 5 marks)

Q9.

Event A and event B are independent events.

The probability that event A will happen is 0.3
The probability that event B will happen is 0.6

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that either event A will happen or event B will happen but not both.

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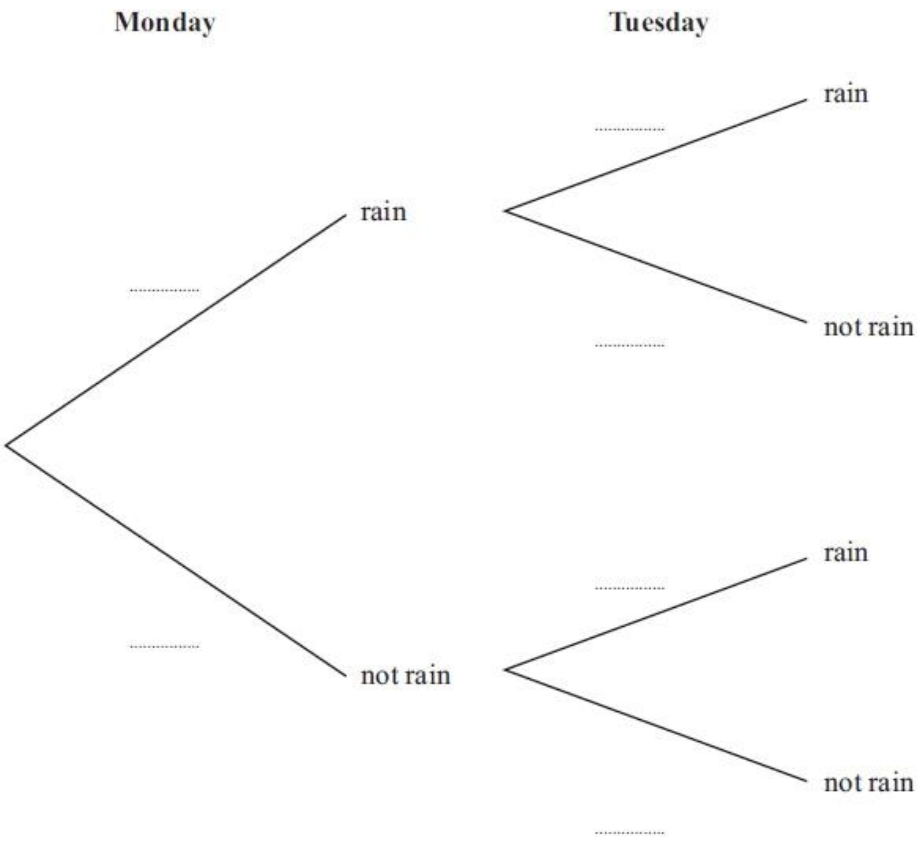
(2)

(Total for Question is 4 marks)

Q10.

The probability that it will rain on Monday is 0.6

When it rains on Monday, the probability that it will rain on Tuesday is 0.8
When it does **not** rain on Monday, the probability that it will rain on Tuesday is 0.5



(a) Complete the probability tree diagram.

(2)

(b) Work out the probability that it will rain on both Monday and Tuesday.

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(2)

(c) Work out the probability that it will rain on at least one of the two days.

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(3)

(Total for Question is 7 marks)

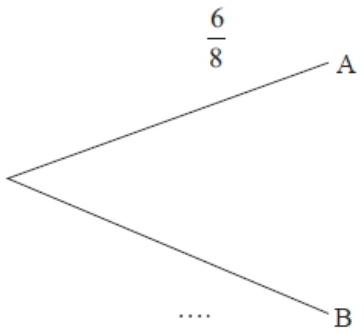
Q11.

There are 8 counters in a box.
The letter A is on 6 of the counters.
The letter B is on the other 2 counters.

Sally takes at random a counter from the box. She keeps the counter.
Then Tina takes at random a counter from the box.

(a) Complete the probability tree diagram.

Sally Tina



(3)

(b) Work out the probability that both Sally and Tina take a counter with the letter A on it.

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(2)

(c) Work out the probability that at least one counter with the letter A on it is taken.

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(3)

(Total for question = 8 marks)

Q12.

There are ten pens in a box.

4 of the pens are red.
6 of the pens are black.

Josh takes at random a pen from the box.
He puts the pen into his bag.
He then takes at random another pen from the box.

Work out the probability that Josh takes one pen of each colour.

(Total for Question is 4 marks)

Q13.

There are only red counters and blue counters in a bag.

Joe takes at random a counter from the bag.
The probability that the counter is red is 0.65
Joe puts the counter back into the bag.

Mary takes at random a counter from the bag.
She puts the counter back into the bag.

(a) What is the probability that Joe and Mary take counters of different colours?

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(2)

There are 78 red counters in the bag.

(b) How many blue counters are there in the bag?

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(2)

(Total for question = 4 marks)