**1.** The spinner shown is spun twice.

(a) Complete the tree diagram below:

**Red**

**R**

**B**

**G**

**R**

**B**

**G**

¼

½

¼

½

¼

¼

**Green**

**Blue**

(b) Calculate the following probabilities:

(i) Pr (Red first) (ii) Pr (both red) (iii) Pr (both blue)

(iv) Pr (same colour) (v) Pr (different colours)

(vi) Pr(neither green) (vii) Pr (at least one blue)

(viii) Pr (blue and green in any order)

**2.** A bag contains 2 black balls and 3 white balls. A ball is drawn at random, its colour noted, then replaced in the bag. Another ball is drawn.

(a) Draw a tree diagram to represent the two draws.

(b) Find:

(i) Pr (both white) (ii) Pr (one of each) (iii) Pr (white, then black) (iv) Pr (same colour)

**3.** Charlotte has not studied for a test, so just guesses the answers to the multiple choice questions for which there are four alternatives A, B, C, D.

(a) Draw a tree diagram to represent the outcome of Charlotte’s chances on the first two questions (R = right, W = wrong)

(b) Calculate the probability of her getting (i) 0 (ii) 1 and (ii) 2 questions correct.

**4.** Repeat Question 3. for the guessing the first three questions on the test, this time finding the probability of getting (i) 0 (ii) 1 (iii) 2 and (iv) 3 questions correct.

**5.** Brandon, Ben and Angus settle in for an afternoon of Scrabble. Past experience has shown that Brandon wins 1 game out of 6, Angus wins 2 games out of 6 and Ben wins 3 games out of 6.

(a) Draw a tree diagram to represent two games.

(b) Find the probability that:

(i) Ben wins both games (ii) Angus wins neither game (iii) Brandon wins at least one game

(iv) Ben wins one game and Angus the other

(c) Based on what you how found out so far, what is the most likely outcome of the two games? (i.e who will go home having one a game and who won’t)

**6.** Mr. Benson is growing orchids. The flower will usually come out to be pink, but occasionally it is blue. (a) If the probability of a blue orchid is 0.1, draw a tree diagram to represent the first two orchids that flower.

(b) Find the probability of them being (i) both pink (ii) both blue (iii) the same colour

(c) Without drawing a tree diagram was is the probability of the the first three orchids being

(i) pink? (ii) blue?