

Surname	
Other Names	
Candidate's Signature	

## GCSE 9 - 1 Questions

### Tree Diagrams 2

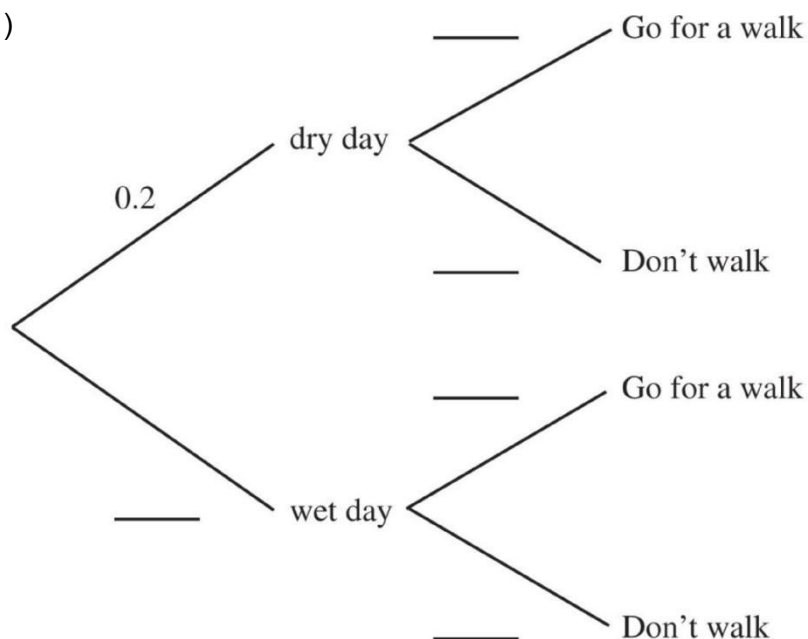
## Calculator Allowed

#### INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

**Total Marks :**

1)



During the winter months the probability of it being a dry day was 0.2  
 On a dry day the probability that Ros would go for a walk was 0.9 and if it  
 was a wet day the probability was 0.4

(a) Complete the tree diagram for these events. [2]

(b) What was the probability that it was a wet day and Ros did go for a walk?

Answer \_\_\_\_\_ [2]

2) A box contains 20 training bibs of which 10 are yellow, 6 are red and 4 are blue.

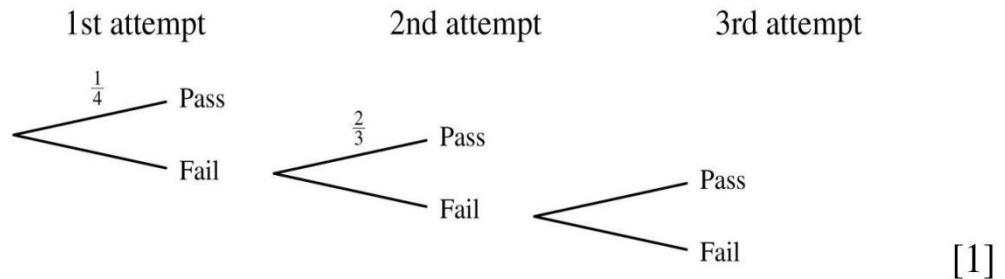
Tammy takes one at random to wear. Then Pat takes one at random.

What is the probability that they both take red bibs?

Answer \_\_\_\_\_ [3]

- 3) The probability that a pupil passes their driving test at the first attempt is  $\frac{1}{4}$ .  
If they fail then the probability of passing at each subsequent attempt is  $\frac{2}{3}$ .

(a) Complete the tree diagram for these events



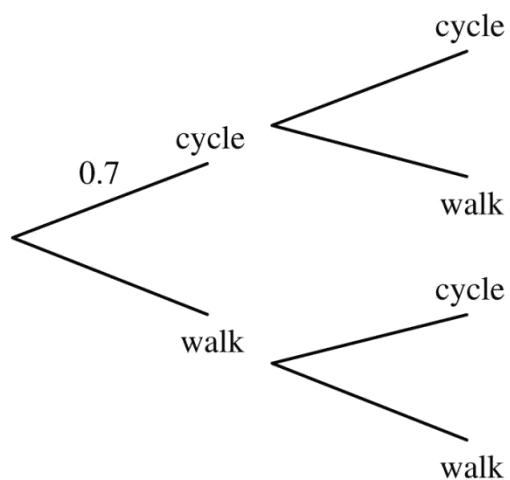
- (b) Calculate the probability that Julie will pass her test on the third attempt.

Answer \_\_\_\_\_ [2]

4) Brian either cycles or walks to work. The probability that he cycles on the first day is 0.7

The probability that Brian goes to work by the same method on the second day as he did on the first day is 0.4

(a) Complete the tree diagram.



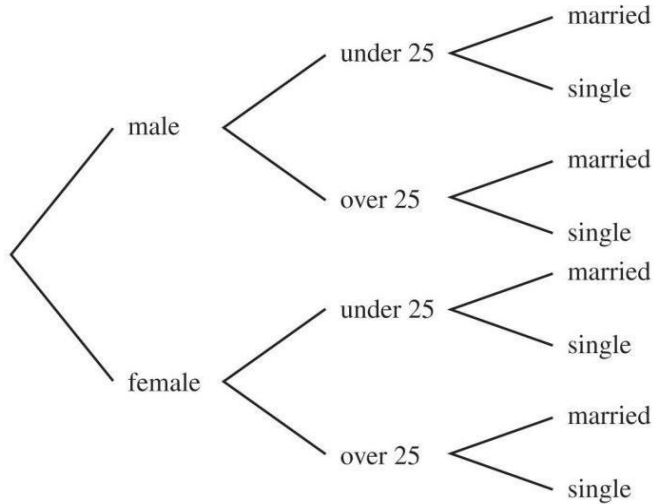
[2]

(b) What is the probability that Brian cycles on only one of the two days?

Answer \_\_\_\_\_ [2]

- 5) A health club has 50 male and 40 female members.  
 The probability that a male member is under 25 is  $\frac{2}{5}$  and the probability that a female member is under 25 is  $\frac{1}{4}$ .  
 The probability that either a male or female member under 25 is married is  $\frac{1}{5}$ .  
 Otherwise, the probability of either a male or female member over 25 being married is  $\frac{7}{10}$ .

(a) Complete the tree diagram. [3]



(b) Find the probability that a randomly selected member

(i) is a married female under 25

Answer \_\_\_\_\_ [1]

(ii) is a single person over 25

Answer \_\_\_\_\_ [2]

(c) Each week one member is chosen at random from the 90 members for a free pass.

What is the probability that in the first two weeks the free pass is won at least once by a single male over 25?

Answer \_\_\_\_\_ [3]

6)



The probability of a famous oil prospector discovering oil in a region of the North Sea is 0.9

If she discovers oil, the chance of pumping oil to the surface on the first drilling is 0.7

If the first drilling fails, the chance of successfully pumping oil to the surface on the second drilling is 0.4

If the second drilling is unsuccessful, the drilling is abandoned as the process is too expensive.

(a) Complete the tree diagram for these events. [2]

(b) What is the probability of discovering oil and pumping it to the surface on the first drilling?

Answer \_\_\_\_\_ [2]

(c) What is the probability that oil will be discovered and pumped to the surface?

Answer \_\_\_\_\_ [3]

(d) What is the probability that no oil will be pumped to the surface?

Answer \_\_\_\_\_ [1]

- 7) In a golf club there are 910 adult members. 350 of these are women.  
The probability that a woman is a non-playing member is 0.3  
The probability that a man is a non-playing member is 0.15  
How many members are non-playing?

Answer \_\_\_\_\_ [4]

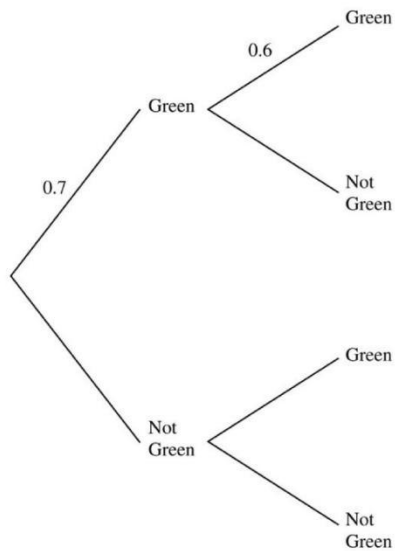


8) A bag contains 5 red and 4 green apples. Michael takes one apple at random from the bag. His sister Ashley then takes an apple at random from the bag. What is the probability that the two apples are the same colour?

Answer \_\_\_\_\_ [3]

- 9) On her way to work Rebekah passes through two sets of traffic lights. The probability that the first set is green when she reaches them is 0.7 and the probability that the second set is green is 0.6

(a) Complete the tree diagram for these events.

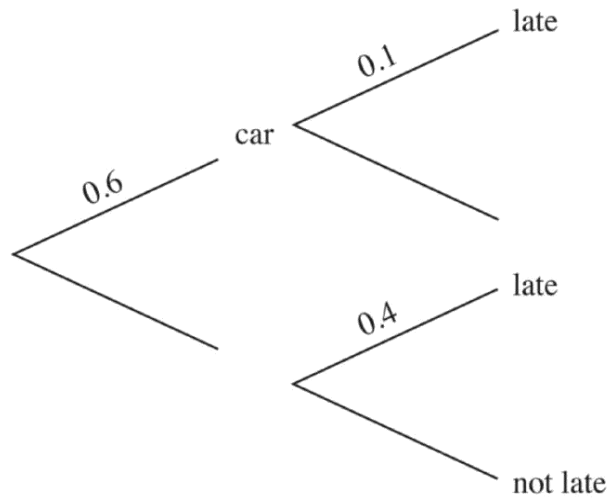


- (b) Use the tree diagram to find the probability that, on a work day chosen at random, Rebekah had to stop at only one set of traffic lights.

Answer \_\_\_\_\_ [2]

- 10) The probability that Peter goes to school by car on any school day is 0.6  
If he goes by car then the probability that he is late is 0.1  
If he doesn't go to school by car then the probability that he is late is 0.4

(a) Use this information to complete the tree diagram below.



[1]

- (b) Calculate the probability that on any school day Peter will be late for school.

Answer \_\_\_\_\_ [2]

- 11) A bag contains 6 red, 3 green and 3 yellow beads. Two beads are selected at random from the bag without replacement. Calculate the probability that both beads are red.

Answer \_\_\_\_\_ [3]

12) The probability that Mark passes his Maths exam is 0.5 and the probability that Julie passes her Maths exam is 0.8

If Mark passes Maths then the probability that he passes Physics is 0.7

If he fails Maths then the probability of passing Physics is 0.2

If Julie passes Maths then she has a probability of 0.9 of passing Physics.

If she fails Maths then she has a probability of 0.3 of passing Physics.

Find

(a) the probability that Mark passes both Maths and Physics,

Answer \_\_\_\_\_ [1]

(b) the probability that they both fail both exams.

Answer \_\_\_\_\_ [3]