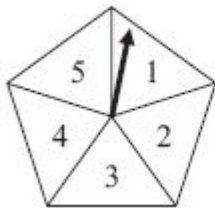


Q1. Ishah spins a fair 5-sided spinner. She then throws a fair coin.



(a) List all the possible outcomes she could get. The first one has been done for you.

(1, head)

.....

(2)

Ishah spins the spinner once and throws the coin once.

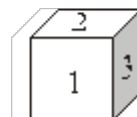
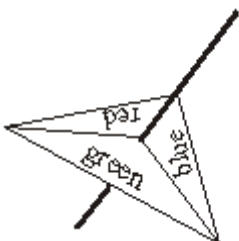
(b) Work out the probability that she will get a 1 and a head.

.....

(1)

(Total 3 marks)

Q2. The diagram shows a 3-sided spinner and an ordinary dice.



The spinner has 1 green side, 1 blue side and 1 red side.

Alex spins the spinner once and rolls the dice once.

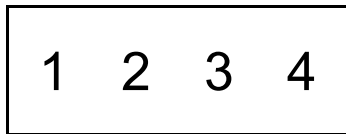
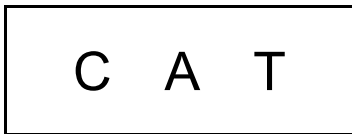
Write down all the possible outcomes.

One has already been done for you.

(g, 1)
.....
.....

(Total 2 marks)

Q3. Glen writes down one letter from the word CAT.
Then he writes down one number from 1, 2, 3 and 4.

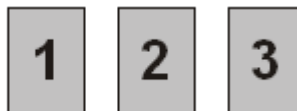


List **all** the possible combinations Glen could write down.

.....
.....
.....
.....

(Total 2 marks)

Q4. Ishmael has four white cards and three grey cards.



Ishmael takes at random one white card and one grey card.

(a) Show all the possible outcomes he could get.

(2)

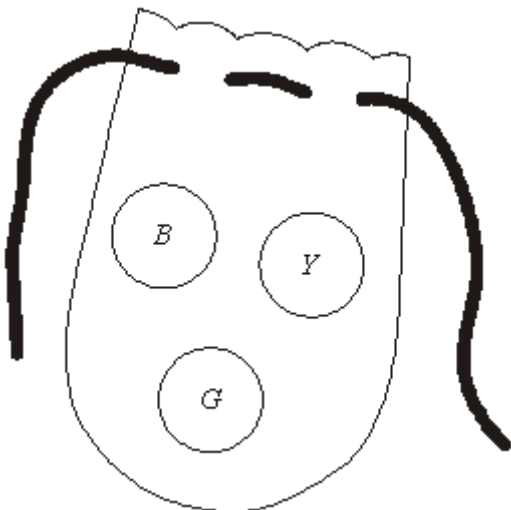
Ishmael takes at random one white card and one grey card.

(b) Work out the probability that he will get a C and a 3.

.....

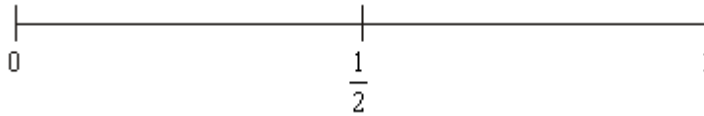
(1)
(Total 3 marks)

Q5. There are three beads in a bag.
One bead is blue, one bead is yellow and one bead is green.



Zoe takes a bead at random from the bag.

- (a) On the probability scale, mark with the letter *B* the probability that she takes a blue bead.



(1)

Zoe now throws a coin.

One possible outcome for the bead and the coin is (green, heads).

- (b) List all the possible outcomes for the bead and the coin.
One has already been done for you.

(green, heads)

.....

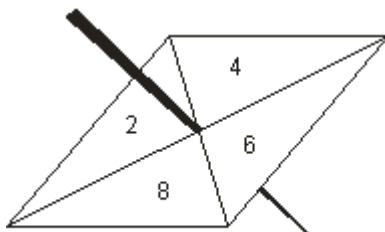
.....

.....

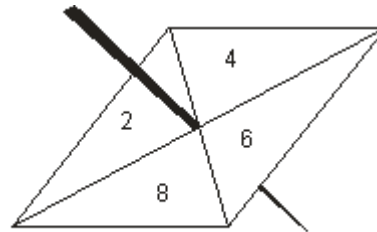
(2)

(Total 3 marks)

- Q6.** Here are two fair 4-sided spinners.
One is a Blue spinner and one is a Red spinner.



Blue Spinner



Red Spinner

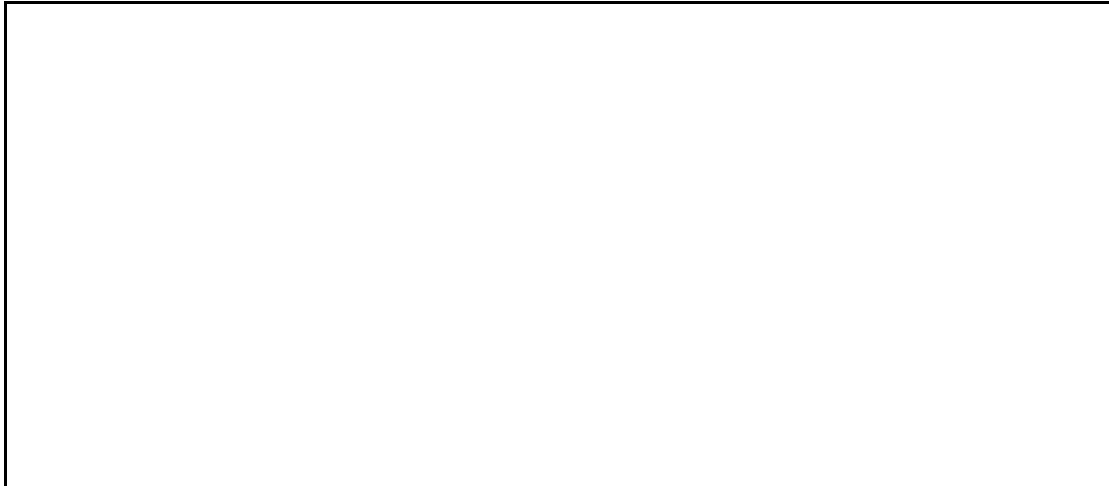
Blue spinner Red spinner

Each spinner has four sections numbered 2, 4, 6 and 8

Each spinner is to be spun once.

Total score = Blue spinner score + Red spinner score.

(a) Find the probability that the total score will be 10.



.....

(3)

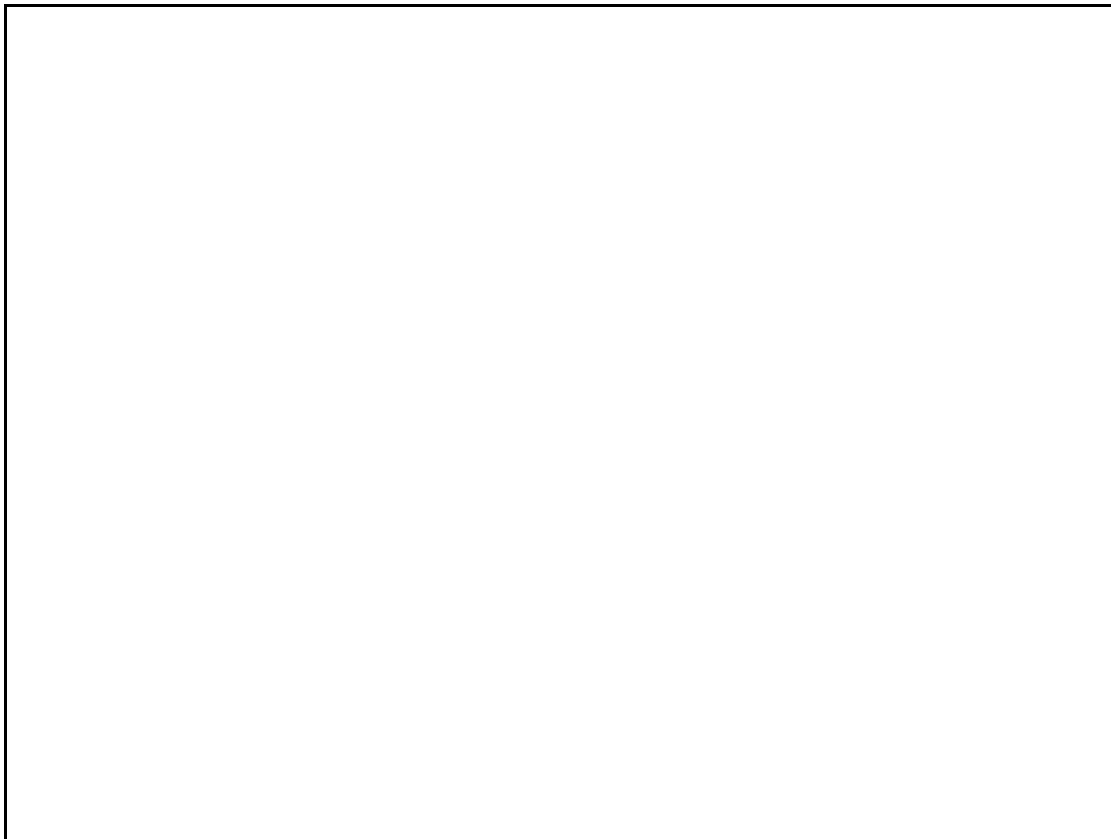
Ali and Shazia play a game.

In each round of the game, Ali spins the Blue spinner once and Shazia spins the Red spinner once.

Ali wins when the Blue spinner score is greater than the Red spinner score.

Ali and Shazia play 80 rounds.

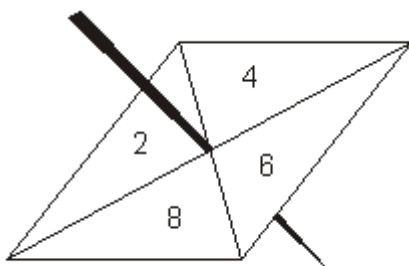
(b) Work out an estimate of the number of rounds that Ali will win.



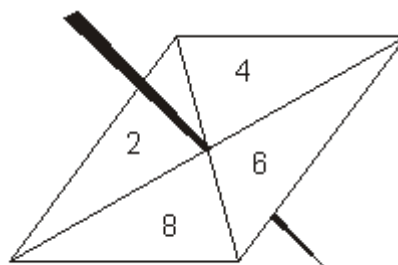
.....

(3)
(Total 6 marks)

Q7. Here are two **fair** 4-sided spinners.
One is a Blue spinner and one is a Red spinner.



Blue Spinner



Red Spinner

Each spinner has four sections numbered 2, 4, 6 and 8.

Each spinner is to be spun once.

Total score = Blue spinner score + Red spinner score

- (a) List the different ways that the total score can be 8.

.....

(2)

Ali and Shazia play a game.
In each round of the game, Ali spins the Blue spinner once and Shazia spins the Red spinner once.
Ali wins when the Blue spinner score is greater than the Red spinner score.

- (b) Work out the probability that Ali will win the first round.

.....

(4)
(Total 6 marks)

M1.

	Working	Answer	Mark	Additional Guidance
(a)	(1,H), (2,H), (3,H), (4,H), (5,H), (1,T), (2,T), (3,T), (4,T), (5,T)		2	B2 for listing 10 outcomes with no extras (B1 for listing 4 additional outcomes, ignore repeats or extras)
(b)		$\frac{1}{10}$	1	B1ft for $\frac{1}{10}$ o.e. or 1/their total Accept decimals or percentages
Total for Question: 3 marks				

M2.

Answer	Mark	Additional Guidance
(g, 1) (g, 2) (g, 3) (g, 4) (g, 5) (g, 6) (b, 1) (b, 2) (b, 3) (b, 4) (b, 5) (b, 6) (r, 1) (r, 2) (r, 3) (r, 4) (r, 5) (r, 6)	2	B2 for a fully correct list [B1 for at least 6 correct additional outcomes] Ignore duplicates e.g. (g, 1) (1, g)
Total for Question: 2 marks		

M3.

Answer	Mark	Additional Guidance
C1, C2, C3, C4 A1, A2, A3, A4 T1, T2, T3, T4	2	B2 for all 12 correct pairs (in any order, eg C1 or 1C) with no incorrect combinations. (B1 for at least 8 different correct pairs, ignoring any extra incorrect combinations) Note: Ignore any repeats
Total for Question: 2 marks		

M4.

	Working	Answer	Mark	Additional Guidance
(a)		(A,1), (A,2), (A,3), (B,1), (B,2), (B,3), (C,1), (C,2), (C,3), (D,1), (D,2), (D,3)	2	B2 for listing all 12 outcomes (B1 for listing 6 outcomes, ignore repeats)

(b)

$$\frac{1}{12}$$

1

Total for Question: 3 marks

M5.

	Answer	Mark	Additional Guidance
(a)	$\begin{array}{c} B \\ \hline \quad \times \quad \end{array}$	1	B1 for B marked on line $0.25 \leq B < 0.5$
(b)	$(g, t), (y, h), (y, t)$ $(b, h), (b, t)$	2	B2 for 5 correct pairs (order within brackets need not be consistent, ignore pairs repeated) and no incorrect pairs (B1 for 2 or more correct pairs, ignore any incorrect pairs)
Total for Question: 3 marks			

M6.

	Working	Answer	Mark	Additional Guidance
(a)	$4 \quad 6 \quad 8 \quad 10$ $6 \quad 8 \quad 10 \quad 12$ $8 \quad 10 \quad 12 \quad 14$ $10 \quad 12 \quad 14 \quad 16$ OR $\frac{1}{4} \times \frac{1}{4}$	$\frac{4}{16}$	3	M1 Attempts to list all outcome pairs A1 all 16 found A1 cao OR

$$\frac{1}{4} \times \frac{1}{4} \times 4$$

(b)

30

3

Total for Question: 6 marks

M7.

	Working	Answer	Mark	Additional Guidance
(a)		(2, 6)(4, 4) (6, 2)	2	M1 lists as ordered pairs or in a table with at least 2 entries A1 all 3 correct entries
(b)		$\frac{6}{16}$	4	M1 lists the sample space (at least 4 pairs) A1 fully correct M1 identifies cases where Ali wins A1 cao
				Total for Question: 6 marks

E1. There was a variety of responses to listing all the outcomes from spinning the spinner and throwing a coin. A large number of candidates had no idea (around 18%) and many others did not realise that there were two options for the coin, namely Heads and Tails.

Many only took note of the Heads on the coin and so only added 4 more possible outcomes. Others were so used to working with dice that they added the extra (6, Head), (6, Tail). Several candidates wrote the outcomes as if they were just from spinners e.g. (1, 1) (2, 1).

Around 60% of the candidates were able to list the 10 outcomes correctly and over 28% were able to score all 3 marks. The most common error in part (b), very frequently seen, was to see an answer of $\frac{2}{7}$ or $\frac{1}{7}$ obtained by attempting to add the fractions $\frac{1}{5}$ and $\frac{1}{2}$. It was also quite common to see both the fractions $\frac{1}{5}$ and $\frac{1}{2}$ on the answer line separated by a comma. Others wrote $\frac{1}{9}$ as they failed to include the given (1, head).

E2. This question proved to be very successful with 55% of candidates being able to write out the missing 17 combinations successfully. One mark was obtained by 25% of candidates that could give an additional 6 outcomes but 20% scored no marks. Interestingly a significant number of candidates thought there were only 3 numbers on the dice since only 1, 2 and 3 were shown in the diagram. The most successful candidates gave their combinations in an ordered fashion, either by all the greens followed by all the blues followed by all the reds or by all the ones, all the twos etc.

##

This question was usually well done and the required 12 pairings (often repeated in reverse order) was seen more than not. However a significant number of candidates then offered extra incorrect combinations which then prevented the award of full credit.

A significant number of candidates wrote, C,1,2,3,4 and A,1,2,3,4, etc. perhaps thinking that this was an acceptable shorthand notation for the 12 possible combinations.

Weaker candidates thought CAT1.CAT2 etc. were the combinations required the word followed by the number.

- E5.** In part (a) it was rather surprising that only half of the candidates could mark the probability correctly on the scale. Part (b) was generally answered well. Many candidates knew what was expected and weaker candidates were often able to gain one mark by identifying two correct pairs. Some used red as a colour and some did didn't appear to know that tails is on the opposite side of a coin to heads.