

Non-Replacement Problems

Question Paper 2

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Handling Data Statistics
Sub Topic	Non-Replacement Problems(Probability)
Booklet	Question Paper 2

Time Allowed: 64 minutes

Score: /53

Percentage: /100

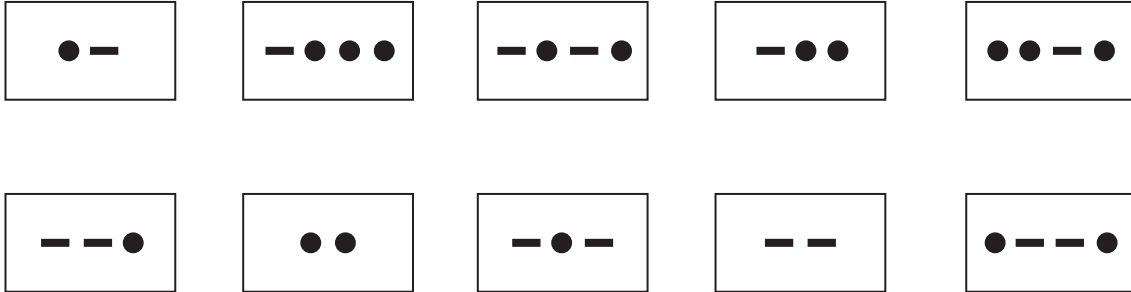
Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

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- 1 Morse Code uses dots (●) and dashes (—) to represent each letter of the alphabet. Here are 10 cards. Each card has the Morse Code for a letter on it.



- (a) Kelly takes at random one of the cards.

Find the probability that she takes a card with 2 dots or a card with 3 dots.

.....
(2)

- (b) Hashim has the 10 cards.
He takes at random a card 200 times.
He replaces the card each time.

Work out an estimate for the number of times he will take a card with exactly 2 dots.

.....
(2)

- (c) Shani takes at random two of the 10 cards without replacement.

Calculate the probability that

- (i) there is exactly 1 dot on each card she takes,

.....

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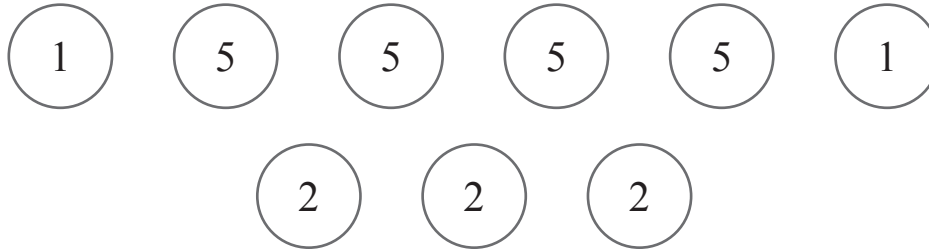
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- (ii) there is a total of 4 dots on the two cards she takes.

.....
(5)

(Total for Question 1 is 9 marks)

- 2 Here are nine counters.
Each counter has a number on it.



The counters are turned over to hide their numbers and are then mixed up.

Susan takes at random a counter and turns it over to reveal its number.
She takes at random a second counter, from the remaining eight counters, and turns it over to reveal its number.

- (a) Calculate the probability that the number 5 is on both of the two counters Susan takes.

.....
(2)

- (b) Calculate the probability that the sum of the numbers on the two counters Susan takes is divisible by 3

.....
(3)

(Total for Question 2 is 5 marks)

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3 The table shows information about the 40 coins in Karam’s money box.

	Bronze coins		Silver coins			
Value of coin (pence)	1	2	5	10	20	50
Number of coins	6	8	12	7	3	

Karam shakes his money box until a coin falls out at random.

He does not replace the coin in the money box.

Karam shakes his money box again until a second coin falls out at random.

(a) Work out the probability that both the coins that fall out are silver coins.

.....
(2)

(b) Work out the probability that the total value of the two coins that fall out is 60 pence or more.

.....
(3)

(Total for Question 3 is 5 marks)

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- 4 Gemma has 9 counters.
Each counter has a number on it.



Gemma puts the 9 counters into a bag.
She takes at random a counter from the bag and does not replace the counter.
She then takes at random a second counter from the bag.

- (a) Work out the probability that the number on each counter is an even number.

.....
(2)

- (b) Work out the probability that the number on the first counter added to the number on the second counter gives an odd number.

.....
(3)

(Total for Question 4 is 5 marks)

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5 Here are 7 cards.

Each card has a number on it.



Harry takes at random two cards.

(a) Calculate the probability that the numbers on the two cards are the same.

.....
(3)

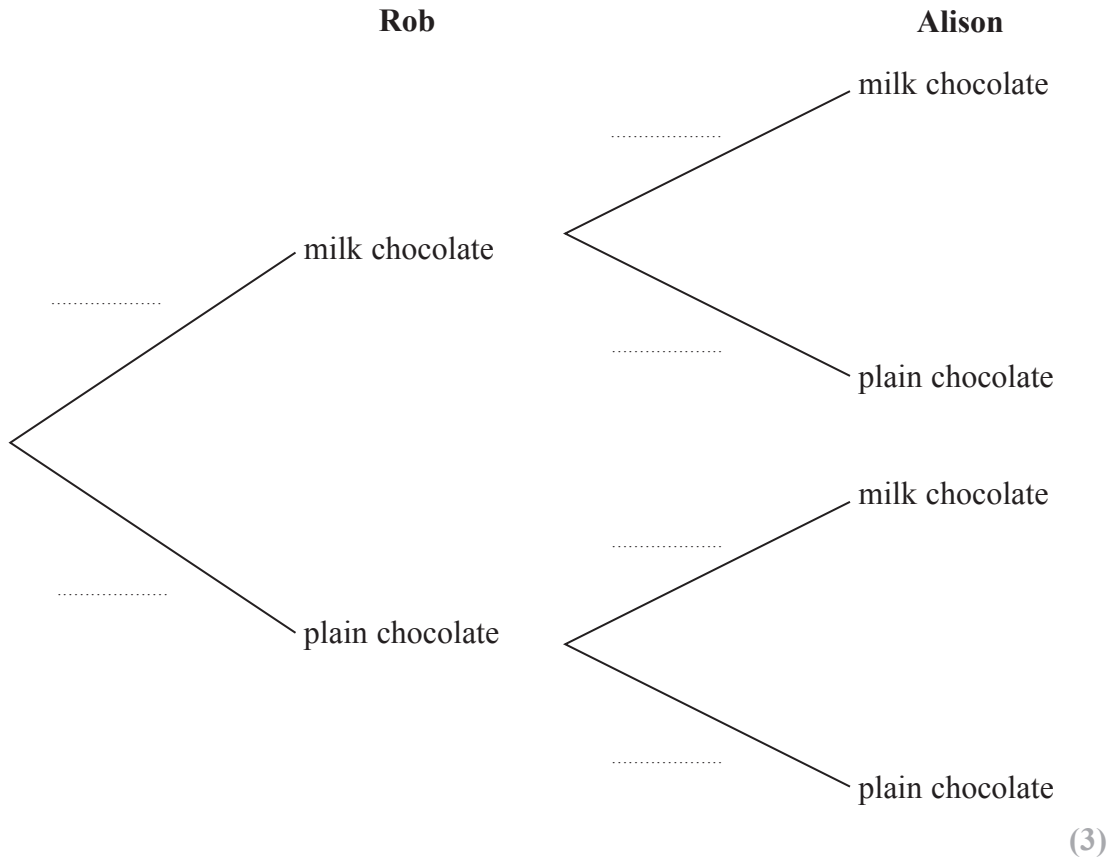
(b) Calculate the probability that the sum of the numbers on the two cards is 5

.....
(3)

(Total for Question 5 is 6 marks)

- 6** There are 6 milk chocolates and 4 plain chocolates in a box.
 Rob takes at random a chocolate from the box and eats it.
 Then Alison takes at random a chocolate from the box and eats it.

(a) Complete the probability tree diagram.



(b) Work out the probability that there are now exactly 3 plain chocolates in the box.

.....
 (3)

(Total for Question 6 is 6 marks)

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- 7 There are 9 counters in a bag.
There is a number on each counter.



Kal takes at random 3 counters from the bag.

He adds together the numbers on the 3 counters to get his Total.

Work out the probability that his Total is 6

.....
(Total for Question 7 is 5 marks)

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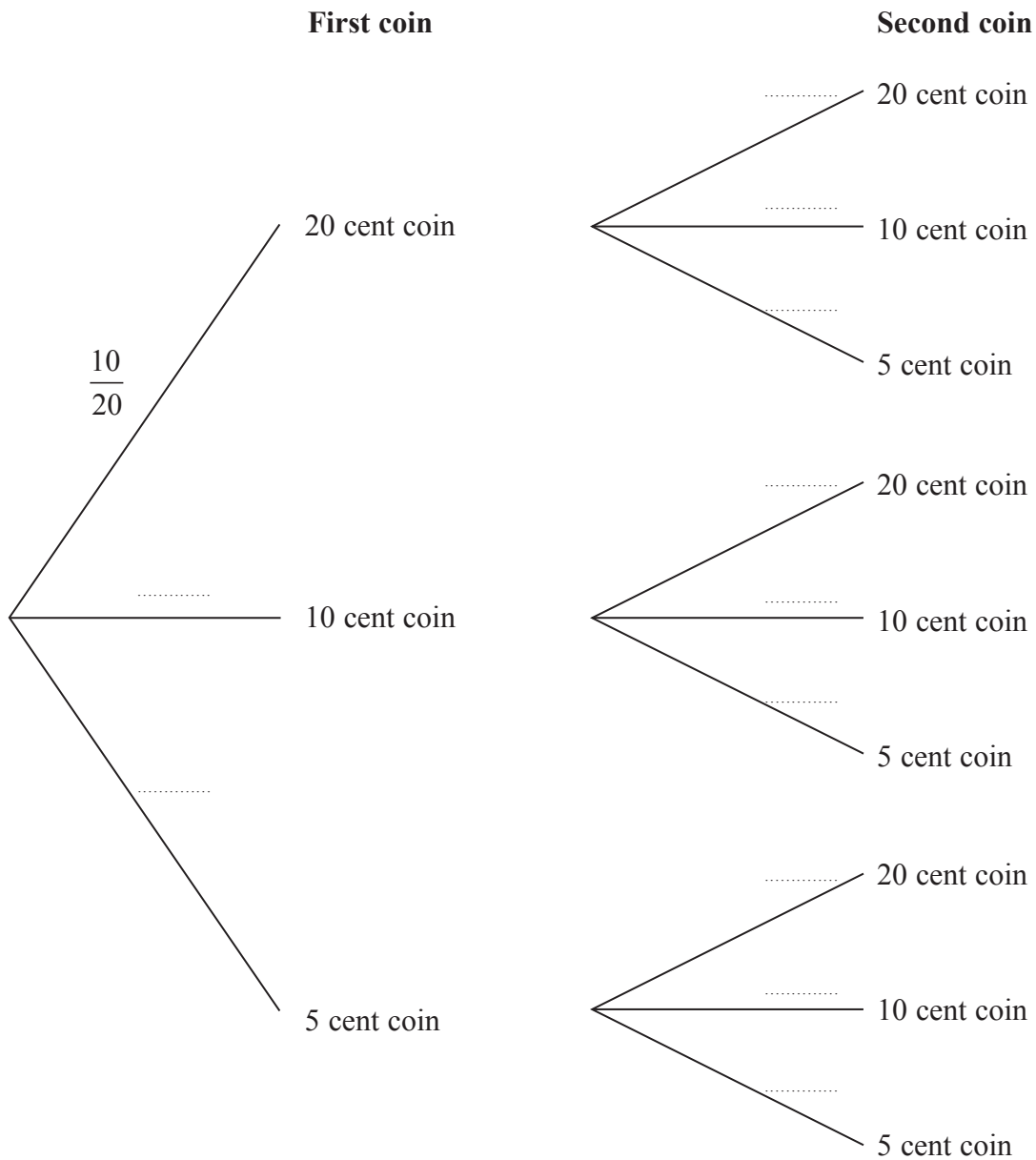
8 In a bag there is a total of 20 coins.

- 10 coins are 20 cent coins
- 6 coins are 10 cent coins
- 4 coins are 5 cent coins

Emma takes at random two of the coins from the bag.

(a) Complete the probability tree diagram.

(2)



(b) Work out the probability that Emma takes two 5 cent coins.

.....
(2)

(c) Work out the probability that the total value of the two coins is 20 cents or less.

.....
(3)

(Total for Question 8 is 7 marks)

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9 Naveed has two bags of tiles, bag **A** and bag **B**.

There are 10 tiles in bag **A**.
7 of these tiles are red.
The other 3 tiles are white.

There are 8 tiles in bag **B**.
5 of these tiles are red.
The other 3 tiles are white.

Naveed takes at random one tile from each bag.

(a) Work out the probability that the tiles are the same colour.

.....
(3)

All 18 tiles are put in a box.
Naveed takes at random one tile from the box.
He does not replace the tile.
Naveed then takes at random a second tile from the box.

(b) Work out the probability that both tiles are red.

.....
(2)

(Total for Question 9 is 5 marks)