KS3 – Combined Events

Section A – Sample Spaces

Q1 (4 marks)

A fair coin is tossed and a fair six-sided die is rolled.

a) How many possible combined outcomes are there?

b) Write the outcome for getting Heads and rolling a 4.

c) Find P(Heads and 4).

d) Find P(Tails and an even number).

Q2 (6 marks)

A spinner has three equal sections labelled A, B and C. A fair coin is tossed.

	Heads	Tails
A		
B		
C		

Complete the sample-space table to show all possible outcomes.

Then find:
a) P(A and Heads)

b) P(B)

c) P(Tails)

d) P(C and Tails)

Q3 (6 marks)

Two fair four-sided spinners are numbered 1, 2, 3 and 4. The score is the sum of the two numbers.

+	1	2	3	4
1				
2				
3				
4				

Complete the sample-space table by writing the sum for every possible outcome.

Then find:
a) P(total = 5)

b) P(total = 8)

c) P(total greater than 5)

d) P(total less than 4)

Q4 (5 marks)
Two fair six-sided dice are rolled.
a) How many equally likely outcomes are there?

b) How many outcomes give a total of 7?

c) Find P(total = 7).

d) Find P(double 6).

e) Find P(total = 2 or total = 12).

Section B – Listing Outcomes

Q5 (5 marks)

A café offers 3 sandwich fillings: cheese (C), tuna (T) and chicken (H), and 2 drinks: water (W) and juice (J).

a) List all possible meal combinations.

b) How many combinations are there?

c) Find the probability of choosing cheese and juice if every combination is equally likely.

Q6 (5 marks)

A two-digit code is made using one digit from {1, 2, 3} followed by one digit from {4, 5, 6}.

a) List all possible codes.

b) How many codes are possible?

c) Find the probability that the code is 25.

d) Find the probability that the code ends in 6.

Q7 (5 marks)

A coin is tossed twice. Use H for heads and T for tails.

a) List all possible outcomes.

b) Find P(two heads).

c) Find P(exactly one head).

d) Find P(at least one head).

e) Find P(no heads).

Q8 (6 marks)

A bag contains one red counter (R), one blue counter (B) and one green counter (G). A counter is chosen, replaced, and then another counter is chosen.

a) List all nine possible ordered outcomes.

b) Find P(RR).

c) Find P(the two colours are the same).

d) Find P(at least one counter is green).

e) Explain why RB and BR are different outcomes.

Q9 (5 marks)

A school chooses one activity and one snack. Activities are Football, Art and Music. Snacks are Apple, Banana and Yogurt.

a) How many different combinations are possible?

b) List all combinations involving Music.

c) Find P(Music and Yogurt) if all combinations are equally likely.

d) Find P(Apple).

e) Find P(not Football).

Challenge

Q10 (6 marks)

A three-digit number is formed using the digits 1, 2 and 3 exactly once each.

a) List all possible three-digit numbers.

b) How many outcomes are there?

c) Find the probability that the number is even.

d) Find the probability that the number is greater than 300.

e) Find the probability that the number begins with 1.

Total: ____ / 53

Percentage: _____%