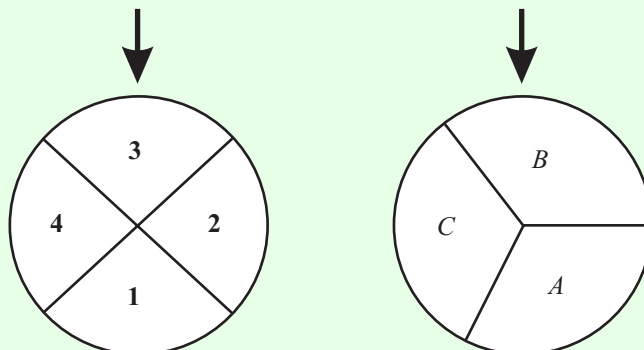


COUNTING & PROBABILITY (Q 6, PAPER 2)

LESSON NO. 4: PROBABILITY AND THE LIST METHOD

2007

6 (b) The diagram shows two wheels.



The first wheel is divided into four equal segments numbered 1, 2, 3 and 4. The second wheel is divided into three equal segments labelled A, B and C. A game consists of spinning the two wheels and noting the segments that stop at the arrows. For example, the outcome shown is (3, B).

- (i) Write down all the possible outcomes.
- (ii) What is the probability that the outcome is (2, C)?
- (iii) What is the probability that the outcome is an odd number with the letter A?
- (iv) What is the probability that the outcome includes the letter C?

2006

6 (c) Three coins are tossed. Each coin gives either a head or a tail.

- (i) Write down all the possible outcomes. For example, “H, T, H” or “head, tail, head” is one possible outcome.
- (ii) Find the probability that the result is three tails.
- (iii) Find the probability that the result includes no more than one head.
- (iv) Find the probability that the result has at least one head.

2005

- 6 (b) Ten teams take part in a competition. The teams are divided into two groups. Teams A, B, C, D and E are in group 1 and teams U, V, X, Y and Z are in group 2. In the final, the winning team from group 1 plays the winning team from group 2. Each team is equally likely to win its group.
- (i) How many different team pairings are possible for the final?
 - (ii) What is the probability that team C plays team X in the final?
 - (iii) What is the probability that team A plays in the final?
 - (iv) What is the probability that team B does not play in the final?

2004

- 6 (c) Four cards, numbered 2, 3, 4, 5 respectively, are shuffled and then placed in a row with the numbers visible. Find the probability that
- (i) the numbers shown are in the order: 5, 4, 3, 2
 - (ii) the first and second numbers are both even
 - (iii) the sum of the two middle numbers is 7.

2003

- 6 (b) Two women, Ann and Bríd, and two men, Con and Declan, sit in a row for a photograph.
- (i) How many different arrangements of the four people are possible?
 - (ii) Write out the four possible arrangements that have the two women in the middle.
 - (iii) If the arrangement of the four people is chosen at random from all of the possible arrangements, what is the probability that the two women will be in the middle?

2000

- 6 (a) To go to work, a woman can walk or travel by bus or travel by car with a neighbour. To return home, she can walk or travel by bus.
- (i) In how many different ways can the woman go to and return from work on any one day?
 - (ii) List all of these different ways.

ANSWERS

2007 6 (b) (i) $(1, a), (1, b), (1, c), (2, a), (2, b), (2, c), (3, a), (3, b), (3, c),$
 $(4, a), (4, b), (4, c)$

(ii) $\frac{1}{12}$ (iii) $\frac{1}{6}$ (iv) $\frac{1}{3}$

2006 6 (c) (i) HHH, HHT, HTH, THH, HTT, THT, TTH, TTT

(ii) $\frac{1}{8}$ (iii) $\frac{1}{2}$ (iv) $\frac{7}{8}$

2005 6 (b) (i) 25 (ii) $\frac{1}{25}$ (iii) $\frac{1}{5}$ (iv) $\frac{4}{5}$

2004 6 (c) (i) $\frac{1}{24}$ (ii) $\frac{1}{6}$ (iii) $\frac{1}{3}$

2003 6 (b) (i) 24

(ii) (Con, Ann, Brid, Declan), (Declan, Ann, Brid, Con),
(Con, Brid, Ann, Declan), (Declan, Brid, Ann, Con)

(iii) $\frac{1}{6}$

2000 6 (a) (i) 6

(ii) {(Walk, Walk), (Walk, Bus), (Bus, Walk), (Bus, Bus), (Car, Walk),
(Car, Bus)}