

COUNTING & PROBABILITY (Q 6, PAPER 2)

2004

- 6 (a) The letters of the word CUSTOMER are arranged at random.
- (i) How many different arrangements are possible?
 - (ii) How many of these arrangements begin with the letter C?
- (b) A committee of 3 people is selected from a group of 15 doctors and 12 dentists. In how many different ways can the 3 people be selected
- (i) if there are no restrictions
 - (ii) if the selection must contain exactly 2 doctors
 - (iii) if the selection must contain at least 1 doctor and at least 1 dentist
 - (iv) if the selection must contain one specific doctor and one specific dentist?
- (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.

ANSWERS

- 6 (a) (i) 40,320 (ii) 5,040
(b) (i) 2,925 (ii) 1,260 (iii) 2,250 (iv) 25
(c) (i) $\frac{1}{24}$ (ii) $\frac{1}{6}$ (iii) $\frac{1}{3}$