



Term 2 Week 1 Revision

Topic: Probability

- 1** The eleven letters in the word CORONAVIRUS are rearranged to form ‘words’ which may not make sense. Find the probability that
- (i)** the two ‘R’s are together; [3]
 - (ii)** the vowels (O, A, I, U) are separated; [3]
 - (iii)** either the first letter is a ‘C’ or the last letter is an ‘S’ or both. [3]
- 2** A bag contains 4 red counters and 6 blue counters. 4 counters are drawn from the bag at random, without replacement.
- (a)** Calculate the probability that
 - (i)** all the counters drawn are blue, [1]
 - (ii)** at least 3 blue counters are drawn, [2]
 - (iii)** at least 1 counter of each colour is drawn, [2]
 - (iv)** at least 3 blue counters are drawn, given that at least 1 of each colour is drawn. [2]
 - (b)** State with a reason whether or not the events “at least 3 blue counters are drawn” and “at least 1 counter of each colour is drawn” are independent. [1]
- 3** Camera lenses are made by two companies, *A* and *B*. 60% of all lenses are made by *A* and the remaining 40% by *B*. 5% of the lenses made by *A* are faulty. 7% of the lenses made by *B* are faulty.
- (i)** One lens is selected at random. Find the probability that
 - (a)** it is faulty, [2]
 - (b)** it was made by *A*, given that it is faulty. [1]
 - (ii)** Two lenses are selected at random. Find the probability that
 - (a)** exactly one of them is faulty, [2]
 - (b)** both were made by *A*, given that exactly one is faulty. [3]

- 4 For events X and Y , it is given that $P(X \cap Y') = \frac{1}{2}$, $P(X \cup Y') = \frac{3}{4}$ and

$$P(X|Y') = \frac{50}{63}.$$

Find

(i) $P(Y')$, [2]

(ii) $P(X)$, [2]

(iii) $P(X \cap Y)$ and state with a reason whether X and Y are independent events. [3]