

Revision Questions – Combination & Permutation**Question 1**

How many different licence plates can be made using two letters from a 26-letter alphabet followed by two digits, if neither the letters nor the digits can be repeated?

- A 2600
- B 46 800
- C 58 500
- D 67 600

Answer: C

Answer all questions on the lines provided. For questions worth multiple marks, working must be shown. Unless specified, all answers should be exact values.

Question 2

A hospital committee of 5 is to be selected from 5 doctors and 8 nurses.

- a) How many different committees can be made? **[1287]**

- b) What is the probability that the committee contains **more** nurses than doctors? Give your answer in simplified fraction form. **$\frac{322}{429}$**

- c) It is decided that within the committee, each member is given a different title. Using your answer from part a., find how many **more** committees can now be created? **[153,153]**

Question 3

A car dealership sells 8 different saloon cars, 4 different station wagons and 6 different pick-up trucks. A company selects 5 of these 18 cars to buy.

- a) How many different selections can be made if there must be at least one of each type of car, there must be no more than 3 saloon cars and no more than 2 of each of the other types of cars?

[4752]

The company buys 2 saloon cars, 1 station wagon and 2 pick-up trucks and parks them in a parking lot, which has a row of 10 empty spaces.

- a) What is the probability with different arrangements in the parking lot if the saloon cars are all together with no spaces between them, the pick-up trucks are both together with no spaces between them and the empty spaces are all together? $\left[\frac{1}{315}\right]$

- b) What is the probability with different arrangements in the parking lot if the saloon cars at each end of the cars and there are no spaces between any cars? $\left[\frac{1}{2520}\right]$
