

COUNTING & PROBABILITY (Q 6, PAPER 2)

2009

6 (a) (i) Evaluate $\binom{7}{2}$.

(ii) Evaluate $\binom{7}{2} + \binom{7}{5}$.

- (b) There are 210 boys and 240 girls in a school. The school has a junior cycle and a senior cycle. The number of boys and the number of girls in each cycle is shown in the table.

	Boys	Girls
Junior Cycle	120	130
Senior Cycle	90	110

- (i) A student is picked at random.
What is the probability that the student is a boy?
- (ii) A student is picked at random.
What is the probability that the student is in the senior cycle?
- (iii) A junior cycle student is picked at random.
What is the probability that the student is a girl?
- (iv) A boy is picked at random.
What is the probability that he is in the senior cycle?
- (c) Three boys and two girls are seated in a row as a group.
In how many different ways can the group be seated if
- (i) there are no restrictions on the order of seating
- (ii) there must be a boy at the beginning of the row
- (iii) there must be a boy at the beginning of the row and a boy at the end of the row
- (iv) the two girls must be seated beside each other?

ANSWERS

- 6 (a) (i) 21 (ii) 42
(b) (i) $\frac{7}{15}$ (ii) $\frac{4}{9}$ (iii) $\frac{13}{25}$ (iv) $\frac{3}{7}$
(c) (i) 120 (ii) 72 (iii) 36 (iv) 48