

LC 2012: PAPER 2

QUESTION 1 (25 MARKS)

Question 1 (a)

S = Sample place

B: Boy, G: Girl

$S = \{BBB, BBG, BGB, GBB, GGB, GBG, BGG, GGG\}$

$\#S = 8 \leftarrow$ This is the number of elements in the sample space

Question 1 (b)

You need to know the number of boys and the number of girls in the school.

MARKING SCHEME NOTES

Question 1 (a) [Scale 10C (0, 4, 7, 10)]

4: • Any work of merit e.g. one correct outcome other than BGG

7: • An almost correct response such as one/two outcomes missing or extra outcomes

Question 1 (b) [Scale 5B (0, 2, 5)]

2: • Any work of merit e.g. the number of boys or the number of girls

Question 1 (c)

$$P(\text{Event}) = \frac{\text{Number of desired outcomes}}{\text{Number of possible outcomes}}$$

$S = \{BBB, BBG, BGB, GBB, \mathbf{GGB}, GBG, BGG, GGG\}$

$$P(\text{GGB}) = \frac{\text{Girl and then a girl and then a boy (G, G, B)}}{\text{Total number of outcomes}} = \frac{1}{8}$$

MARKING SCHEME NOTES

Question 1 (c) [Scale 5B (0, 2, 5)]

2: • Any work of merit e.g. correct numerator or denominator in fraction format

e.g. $P(2 \text{ girls and a boy}) = \frac{3}{8}$

5: • Correct answer without work shown

Question 1 (d)

$E = \{BBG, BGB, GBB, GGB, GBG, BGG, GGG\} \leftarrow$ Each element has at least 1 girl.

$\#(E) = 7$

$$P(\text{At least 1 Girl}) = \frac{7}{8}$$

$E = \{BBB, BBG, BGB, GBB\} \leftarrow$ Each element has 3 boys or 2 boys and a girl.

$\#(E) = 4$

$$P(3 \text{ boys or 2 boys and a girl}) = \frac{4}{8} = \frac{1}{2}$$

Niamh is more likely to be right as the probability of at least 1 girl is $\frac{7}{8}$ which is greater than the probability of 3 boys or 2 boys and 1 girl which is $\frac{4}{8}$.

MARKING SCHEME NOTES

Question 1 (d) [Scale 5C (0, 2, 4, 5)]

- 2:**
- Any work of merit
e.g. outcomes for Niamh or Peter given or a correct answer with no work shown
- 4:**
- An almost correct response such as the outcomes for both Niamh and Peter given
 - Answer with one element missing
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