

LC 2014 (SET C): PAPER 2

QUESTION 2 (25 MARKS)

Question 2 (a)

$$P(\text{Scoring}) = \frac{3}{4}$$

$$P(\text{Failing to score}) = 1 - \frac{3}{4} = \frac{1}{4}$$

SUCCESS AND FAILURE

If there are 2 outcomes: Success *or* Failure

$$P(\text{Success}) = 1 - P(\text{Failure})$$

MARKING SCHEME NOTES

Question 2 (a) [Scale 10B (0, 5, 10)]

- 5: • Writes the correct #E or #S
 • Any incomplete work with 1
- 10: • Accept correct answers without work

Question 2 (b)

$$P(\text{Scoring and then scoring}) = \frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$$

AND/OR

AND: Multiply

$P(A)$ and then $P(B)$: $P(A) \times P(B)$

OR: Add

$P(A)$ or $P(B)$: $P(A) + P(B)$

MARKING SCHEME NOTES

Question 2 (b) [Scale 5C (0, 3, 4, 5)]

- 3: • Identifies the probability of scoring here
 • Writes $P(S, S)$ as $(\frac{3}{4} + \frac{3}{4})$
- 4: • Fails to finish. [$P(S, S) = (\frac{3}{4} \times \frac{3}{4})$] or $\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$
- 5: • Accept correct answers without work

Question 2 (c)

Scores = S, Fails to score = F

Different ways in which he can score exactly twice from 3 penalties: SSF, SFS, FSS (3 ways)

$$P(S) = \frac{3}{4}$$

$$P(F) = \frac{1}{4}$$

$$P(\text{S and S and F}) = \frac{3}{4} \times \frac{3}{4} \times \frac{1}{4} \times 3 = \frac{27}{64}$$

MARKING SCHEME NOTES

Question 2 (c) [Scale 5A (0, 5)]

- 5: • Accept correct answers without work

Question 2 (d)

This means that he fails to score on his first 4 penalties and scores on his fifth penalty: F, F, F, F, S

$$P(\text{F and F and F and F and S}) = \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{3}{4} = \frac{3}{1024}$$

MARKING SCHEME NOTES**Question 2 (d) [Scale 5C (0, 3, 4, 5)]**

3: • Correctly identifies P(S) and/or P(M)

• Lists the outcomes as M,M,M,M,S, or writes as $(\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{3}{4})$

4: • A fully correct substitution. i.e. $(\frac{1}{4})^4 \times \frac{3}{4}$

5: • Accept correct answers without work