



(Total 5 marks)

Q1



Find the probability that, in 9 games, Bhim loses

- (a) exactly 3 of the games, (3)

- (b) fewer than half of the games. (2)

Bhim attends coaching sessions for 2 months. After completing the coaching, the probability that he loses each game, independently of all others, is 0.05

Bhim and Joe agree to play a further 60 games.

- (c) Calculate the mean and variance for the number of these 60 games that Bhim loses. (2)

- (d) Using a suitable approximation calculate the probability that Bhim loses more than 4 games.
- (3)**



Q2



(5)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Q3



$$F(x) = \begin{cases} 0 & x < 1 \\ \frac{4}{9}(x^2 + 2x - 3) & 1 \leq x \leq 1.5 \\ 1 & x > 1.5 \end{cases}$$

- (c) Find $P(X \geq 1.2)$ (2)

A camping lantern runs on 4 batteries, all of which must be working. Four new batteries are put into the lantern.

- (d) Find the probability that the lantern will still be working after 12 hours. (2)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



This image shows a full page of blank, lined paper. It features approximately 28 horizontal grey lines spaced evenly apart, typical of standard notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings present.

Question 4 continued

(Total 10 marks)

Q4

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(1)

(5)

(9)

[illegible]

Q5



[illegible]

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Question 6 continued

(Total 15 marks)

Q6

[illegible]

[illegible]

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Question 7 continued

[illegible]

(Total 15 marks)

TOTAL FOR PAPER: 75 MARKS

END

