Question 14 (9 marks)
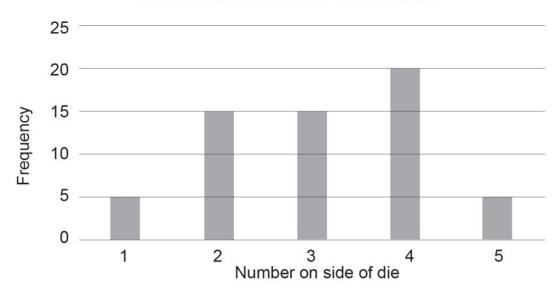
The simulation of a loaded (unfair) five-sided die rolled 60 times is recorded with the following results.

Simulation of 60 tosses of loaded die

(a) Calculate the proportion of prime numbers recorded in this simulation. (2 marks)

(b) Determine the mean and standard deviation for the sample proportion of prime numbers in 60 tosses, using the results above. (2 marks)

(c) It has been decided to create a confidence interval for the proportion of prime numbers using the simulation results on page 8. The level of confidence will be chosen from 90% or 95%. Explain which level of confidence will give the smallest margin of error. State this margin of error. (3 marks)

This simulation of 60 rolls of the die is performed another 200 times, with the proportion of prime numbers recorded each time and graphed.

(d) Comment briefly on the key features of this graph. (2 marks)