Bet.Me Data Science Test

Carry out your workings in R, Python or Go and separately, state any assumptions you make and the consequences of a departure from those assumptions.

1) In a best of 9 frame snooker match between Player A and Player B, it is estimated that the probability for Player A to win the first frame is 55%. Using this information:

a) estimate the probability for Player A to win the match,
b) estimate the probability for there to be at least 8 frames played in the match
c) what would be an appropriate level of odds (in decimal format) to offer for Player B to win the match.

2) In a football match between Team A and Team B, Team A is estimated to have a goals expectancy of 1.5 goals and Team B is estimated to have a goals expectancy of 1.25 goals. Using the Poisson Distribution:

a) estimate the probability for Team A to win the match,
b) estimate the probability for there to be at least 2.5 goals in the match
c) what would be an appropriate level of odds (in decimal format) to offer for the match to be drawn.

3) In a tennis match, the probability of Player A winning a given point on serve in the first game of the match is 0.52. Find the probability that Player B wins the first game, given player A is serving.

4) In a five horse race, the following table sets out the decimal odds for each horse to win the race. What should the price be for an exact 1-2-3 finish based on Horse A winning, Horse B coming 2nd and Horse C coming 3rd?

Horse A	3.03
Horse B	6.66
Horse C	3.12
Horse D	6.25
Horse E	25