Qa.

1st plot shows the every random generated number U, and its corresponding X_a value.
2nd plot shows the histogram of both U and X_a for every value of U and X_a
3rd plot show the cumulative sum of both U and X_a for every value of U and X_a

If we were to make this simulation with 9 values:
U values are (0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9)
Corresponding X_a values would be (square root of U values)(0.31,0.44,0.54,0.63,0.7,0.77,0.83,0.89,0.94)
Sum of these values are 6.05
Divide this by 9 to get the average $6.05/9 = 0.67 =$ Expected value of X_a
Subtract the X_a values from 0.67 (0.36,0.23,0.13,0.04,0.03,0.1,0.16,0.22,0.27)
Take the squares of these values (0.1296,0.0529,0.016,0.0016,0.0009,0.01,0.025,0.0484,0.0729)
Sum of these values are 0.3564 , Then divide this by n-1 which is 8
$0.3564/8 = 0.044 =$ Variance of X_a.
In simulation we both find the same numbers more or less. Expected value and Variance holds.

Qb.

1st plot shows the accepted values for X_b value.
2nd plot shows the cumulative sum for the X_b values
Variance is more than it was in a since the range of our operation is now wider resulting in more different and discrete values which makes the variance larger.
Average is as expected larger than 0.5 and it is almost equal to avg X_a