Assignment 6

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Question 1

IM = , where

Formula of L and U for 95% confidence interval are-

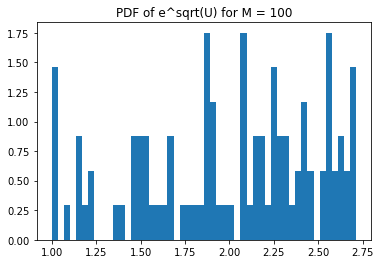
L = , where n = M and sn as defined above.

R =

For different values of M, IM, L and R obtained from the generated sample are as below –

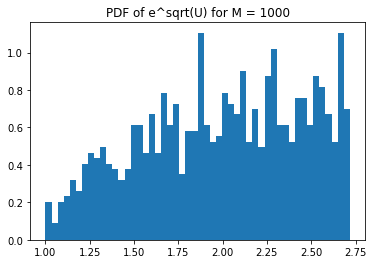
i) M = 100, IM = 1.9996175037246708, L = 1.9024585893986745 and

U = 2.096776418050667



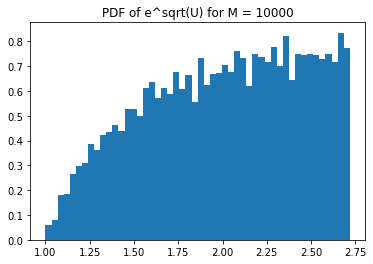
ii) M = 1000, IM = 1.9932103785476072, L = 1.96512374455047 and

U = 2.0212970125447445



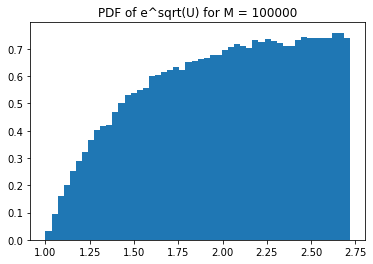
iii) M = 10000, IM = 2.0064320742351125, L = 1.9977475884040865 and

U = 2.0151165600661387



iv) M = 100000, IM = 2.0029214438351355, L = 2.0001837087749217 and

U = 2.0056591788953493



Exact value of I =

As the value of M increases, IM gets closer to I which is 2 and the confidence interval also shrinks. Graph become much smoother and take the shape of original PDF with increase in M.