Assignment 8

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Question 1

Wj is equal to for S = 0,1,2,3,4,5, where = 2.9

Wj is equal to (1 – W1 – W2 – W3 – W4 – W5) for S = 6

For Weibull distribution, k = 0.8 and

PDF of Weibull distribution f(x) =

CDF of Weibull distribution = =

Weibull distribution is generated by taking inverse of CDF by –

Weibull distribution =

CLT based 99% confidence interval for mu is -

[, ]

Question 2

Formula Used-

Generated Y19 which is a Gamma distribution by-

Y19 = X1 + X2 + …. Xα19 where Xi are exponential distribution and

α19 = 2284

h(y19 ) = for α19 = 2284

Gα (x) =

P(X19 = max Xi) = P(Y19 = max Yi) = cond =

This P(X19 = max Xi) comes out to be 0.632597270803403

which is calculated in the code file.

Question 3

Formula Used-

Log normal (µ , σ ^(2)) is generated by e^(X) where X is N(µ , σ ^(2))

f(x) = max(0, 0.2\*(X1 + X2 + X3 + X4 + X5))

h(x) = max(0, 0.2\*( X1 + X2 + X3 + X4 + X5))

where Xi are log normal

After generating f(X) and h(x) , and are calculated as below-

=

Finally, is calculated using the below formula

Five values of [mu, variance] are :

[2,0.7]

[1,0.9]

[-2.5,0.9]

[1.5,1]

[3,1.1]

E[f(x)] = 11.398