Lab 5 - IE 6200 - Sec 07 - Omkar Kalange

Q1)

X=Rv number of accidents that occur at certain intersection

X~P(x,4)

> dpois(x=4, lambda=4)

[1] 0.1953668

> ppois(q=2, lambda=4)

[1] 0.2381033

> 1-ppois(q=1, lambda=4)

[1] 0.9084218

Q2)

X = RV that delelgates travel by bus, air or automobile

X~M(x;n=9,p=[.4,.2,.3,.1])

> dmultinom(x=c(3,3,1,2),size=9,prob=c(.4,.2,.3,.1))

[1] 0.00774144

> dmultinom(x=c(2,2,1,1),,prob=c(0.4, 0.2, 0.3, 0.1))

[1] 0.03456

Q3)

X = Rv about life of a mice

X ~N(x;40,6.3)

> 1-(pnorm(32,mean=40,sd=6.3))

[1] 0.8979294

> (pnorm(28,mean=40,sd=6.3))

[1] 0.02840551

> (pnorm(49,mean=40,sd=6.3)-pnorm(37,mean=40,sd=6.3))

[1] 0.6064669

Q4)

X= Rv that a compressor is faulty

X~H(x;N=15,n=5,k=2)

> dhyper(x=1,m=2,n=13,k=5)

[1] 0.4761905

> dhyper(x=2,m=2,n=13,k=5)

[1] 0.0952381

Q5)

X = RV of lifecycle of fluroscent light

X~b(x;20,0.9)

> dbinom(18,20,0.9)

[1] 0.2851798

> 1-(pbinom(q=14,size=20,0.9))

[1] 0.9887469

> (pbinom(18,size=20,0.9))

[1] 0.608253

Q6)

X = RV of time between two variables

X~Exp(x;B=8)

> pexp(q=5, rate=1/8)

[1] 0.4647386

> pexp(q=6, rate=1/8) - pexp(q=4, rate=1/8)

[1] 0.1341641

Q7)

X= RV of amount of coffee dispensed

X~U(x;A=7,B=10)

> punif(q=8.8, min=7, max=10)

[1] 0.6

> punif(q=9.5, min=7, max=10) - punif(q=7.4, min=7, max=10)

[1] 0.7

> 1-punif(q=8.5, min=7, max=10)

[1] 0.5

Q8)

X = RV that a student will pass a pilot test

X~G(x;p=0.7)

> dgeom(2,0.7)

[1] 0.063

> dgeom(0,0.7)

[1] 0.7

Q9

X= RV for power usage of a company

X~logn(x;4,2)

> 1-plnorm(270,4,2)

[1] 0.212084