

PS Lab 6-IT24103508

```
setwd("C:\\Users\\Venura Jayawardana\\Desktop\\IT24103508")
getwd()
##Question 01

#part 1
##Binomial Distribution
#random variable x has binomial distribution with n=44 and p=0.92

#part 2
dbinom(40,44,0.92)

#part 3
pbinom(35,44,0.92,lower.tail = TRUE)

#part 4
1-pbinom(37,44,0.92,lower.tail = TRUE)
pbinom(37,44,0.92,lower.tail = FALSE)

#part 5
pbinom(42,44,0.92,lower.tail = TRUE)-pbinom(39,44,0.92,lower.tail = T

##Question 02

#part 1
##number of babies in a hospital on a give

#part 2
##random variable x has poisson distribution with lambda=5

#part 3
dpois(6,5)

#part 4
ppois(6,5,lower.tail = FALSE)
```

```
34
35 #Exercise
36 ##Question 01
37
38 n <- 50
39 p <- 0.85
40
41 # i. Distribution of X
42
43 #2
44 prob_atleast_47 <- 1 - pbinom(46, size = n, prob = p)
45 cat("P(X >= 47) =", prob_atleast_47, "\n")
46
47 ##Question 02|
48 # 1. Random variable X = number of calls received in an hour
49
50 # 2. Distribution: Poisson(lambda = 12)
51
52 #3
53 lambda <- 12
54 prob_15 <- dpois(15, lambda)
55 cat("P(X = 15) =", prob_15, "\n")
56
```

```

> setwd("C:\\Users\\Venura Jayawardana\\Desktop\\IT24103508")
> getwd()
[1] "C:/Users/Venura Jayawardana/Desktop/IT24103508"
> ##Question 01
>
> #part 1
> ##Binomial Distribution
> #random variable x has binomial distribution with n=44 and p=0.92
>
> #part 2
> dbinom(40,44,0.92)
[1] 0.1979776
>
> #part 3
> pbinom(35,44,0.92,lower.tail = TRUE)
[1] 0.007252274
>
> #part 4
> 1-pbinom(37,44,0.92,lower.tail = TRUE)
[1] 0.9412233
> pbinom(37,44,0.92,lower.tail = FALSE)
[1] 0.9412233
>
> #part 5
> pbinom(42,44,0.92,lower.tail = TRUE)-pbinom(39,44,0.92,lower.tail = TRUE)
[1] 0.6025556
>
> ##Question 02
>
> #part 1
> ##number of babies in a hospital on a give
>
> #part 2
> ##random variable x has poisson distribution with lambda=5
>
> #part 3
> dpois(6,5)
[1] 0.1462228
>
> #part 4
> ppois(6,5,lower.tail = FALSE)
[1] 0.2378165
>
> #Exercise
> ##Question 01
>
> n <- 50
> p <- 0.85
>
> # i. Distribution of X
>
> #2
> prob_atleast_47 <- 1 - pbinom(46, size = n, prob = p)
> cat("P(X >= 47) =", prob_atleast_47, "\n")

```

```

> cat("P(X >= 47) =", prob_atleast_47, "\n")
P(X >= 47) = 0.04604658
>
> ##Question 02
> # 1. Random variable x = number of calls received in an hour
>
> # 2. Distribution: Poisson(lambda = 12)
>
> #3
> lambda <- 12
> prob_15 <- dpois(15, lambda)
> cat("P(X = 15) =", prob_15, "\n")
P(X = 15) = 0.07239112

```

values	
lambda	12
n	50
p	0.85
prob_15	0.0723911201466387
prob_atleast_47	0.0460465788923019