IT24100715-Madhushan W M G

Probability and Statistics | Lab Sheet 06 Exercise

```
1 setwd("C:\\Users\\Gaveesha\\Desktop\\LabSheet\\Lab06")
   2 # Exercise
   3 #(01)
   4 n <- 50
   5 p <- 0.85
   7 #(i) Distribution of X?
  8 X \sim Binomial(n=50, p=0.85)
  9
  10 #(ii) Probability that at least 47 students passed the test?
  11 # P(X >= 47) = 1 - P(X <= 46)
  12
  13 prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)
  14 prob_at_least_47
  15
  16 #(02)
  17 #(i) Random variable (X) = # of calls received in an hour
  18
  19 #(ii) Distribution of X
  20 X ~ Poisson(lambda = 12)
  21
  22 #(iii) Probability that exactly 15 calls are received in an hour?
  23 lambda <- 12
  24 prob_15 <- dpois(15, lambda = lambda)
  25 prob_15
  26
(01)
> # Exercise
> #(01)
> n <- 50
> p < -0.85
> #(i) Distribution of X?
> X ~ Binomial(n=50, p=0.85)
X \sim Binomial(n = 50, p = 0.85)
> #(ii) Probability that at least 47 students passed the test?
> # P(X >= 47) = 1 - P(X <= 46)
> prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)</pre>
> prob_at_least_47
[1] 0.04604658
```

```
(02)
```

```
> #(02)
> #(i) Random variable (X) = # of calls received in an hour
> #(ii) Distribution of X
> X ~ Poisson(lambda = 12)
( ~ Poisson(lambda = 12)
> #(iii) Probability that exactly 15 calls are received in an hour?
> lambda <- 12
> prob_15 <- dpois(15, lambda = lambda)
> prob_15
[1] 0.07239112
```

Values	
lambda	12
n	50
p	0.85
prob_15	0.0723911201466387
prob_at_least_47	0.0460465788923019