

Sri Lanka Institute of Information
Technology



Lab Submission

<Lab sheet 06>

<IT24101536>

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Probability and Statistics - IT2120

B.Sc. (Hons) in Information Technology

```
setwd("C:\\Users\\TUF\\Desktop\\IT24101536")
getwd()
```

```
> setwd("C:\\Users\\TUF\\Desktop\\IT24101536")
> getwd()
```

```
[1] "C:/Users/TUF/Desktop/IT24101536"
```

```
# Question 1
# part1
# binomial Distribution
# here random variable x has binomial distribution with n=44 and p=0.92
```

```
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> # part1
> # binomial Distribution
> # here random variable x has binomial distribution with n=44 and p=0.92
>
```

```
# part 2
dbinom(40, 44, 0.92)
```

```
# part 3
# find  $p(x \leq 35)$ 
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 2
> dbinom(40, 44, 0.92)
[1] 0.1979776
>
> # part 3
> # find  $p(x \leq 35)$ 
> 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)
```

```
> # part 5
> pbinom(42, 44, 0.92, lower.tail = TRUE) - pbinom(39, 44, 0.92, lower.tail = TRUE)
[1] 0.6025556

```

```

# Question 2
# part 1
# number of babies born in a hospital

# part 2
# poisson Distribution

# part 3
#  $p(x=6)$ 
dpois(6, 5)

# part 4
#  $p(x>6)$ 
ppois(6, 5, lower.tail = FALSE)

```

```

> # Question 2
> # part 1
> # number of babies born in a hospital
>
> # part 2
> # poisson Distribution
>
> # part 3
> #  $p(x=6)$ 
> dpois(6, 5)
[1] 0.1462228
>
> # part 4
> #  $p(x>6)$ 
> ppois(6, 5, lower.tail = FALSE)
[1] 0.2378165

```

Exercise

Question 01

```

# -----
# Exercise
# Question 1
# 1
# binomial Distribution
# here random variable x has binomial distribution with n=50 and p=0.85

> # Exercise
> # Question 1
> # 1
> # binomial Distribution
> # here random variable x has binomial distribution with n=50 and p=0.85
`

```

```
# 2
# at least 47 student passed the test p(x>=47)
pbinom(46, 50, 0.85, lower.tail = FALSE)
1-pbinom(46, 50, 0.85, lower.tail = TRUE)
```

```
> # 2
> # at least 47 student passed the test p(x>=47)
> pbinom(46, 50, 0.85, lower.tail = FALSE)
[1] 0.04604658
> 1-pbinom(46, 50, 0.85, lower.tail = TRUE)
[1] 0.04604658
```

Question 02

```
# Question 2
# 1
# number of receives call in per hour

# 2
# poisson distribution
# here random variable x has poisson distribution with lambda = 12

# 3
# p(x=15)
dpois(15, 12)
```

```
<
> # Question 2
> # 1
> # number of receives call in per hour
>
> # 2
> # poisson distribution
> # here random variable x has poisson distribution with lambda = 12
>
> # 3
> # p(x=15)
> dpois(15, 12)
[1] 0.07239112
```