

Sri Lanka Institute of Information Technology



Lab Submission 06

IT24103021

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Probability and Statistics - IT2120

B.Sc. (Hons) in Information Technology

Exercise

```
1 #Exercise Lab 06
2
3 setwd("C:/Users/Home/Desktop/IT24103021")
4
```

Question 01.

i. What is the distribution of X?

```
5 #01
6 #Part i
7 #Binomial Distribution
8 #X = number of students who passed the test
9 #random variable X has binomial distribution with n=50 and p=0.85
10
```

ii. What is the probability that at least 47 students passed the test?

```
10
11 #Part ii ( P(X>=47) ) = (P(x>46))
12 pbinom(46,50,0.85,lower.tail=FALSE)
13
```

15:1 (Top Level) R Script

Console Terminal Background Jobs

R 4.5.1 · C:/Users/Home/Desktop/IT24103021/

```
> #Part ii ( P(X>=47) ) = (P(x>46))
> pbinom(46,50,0.85,lower.tail=FALSE)
[1] 0.04604658
```

Question 02.

i. What is the random variable (X) for the problem?

```
15 #02
16 #Part i
17 #random variable X = number of calls received per hour.
18
```

ii. What is the distribution of X?

```
18
19 #Part ii
20 #Poisson Distribution
21 #random variable X has poisson distribution with lamda=12
22
```

iii. What is the probability that exactly 15 calls are received in an hour?

```
23 #Part iii
24 dpois(15,12)
25
```

15:1 (Top Level) R Script

Console Terminal Background Jobs

R 4.5.1 · C:/Users/Home/Desktop/IT24103021/

```
> #Part iii
> dpois(15,12)
[1] 0.07239112
```