

Sri Lanka Institute of Information Technology



Lab Submission
<Lab sheet 07>

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Probability and Statistics| IT2120

B.Sc. (Hons) in Information Technology

Exercise

1.

```
#1. A train arrives at a station uniformly between 8:00 a.m. and 8:40 a.m. Let the
#P(10<X<25)=P(X<=25)-P(X<=10)
punif(25,min=0,max=40,lower.tail=TRUE)-punif(10,min=0,max=40,lower.tail=TRUE)

> punif(25,min=0,max=40,lower.tail=TRUE)-punif(10,min=0,max=40,lower.tail=TRUE)
[1] 0.375
> |
```

2.

```
#2.The time (in hours) to complete a software update is exponentially distributed with rate  $\lambda = 1/3$ .Find the
#P(X<=2)
pexp(2,rate=1/3,lower.tail=TRUE)

> pexp(2,rate=1/3,lower.tail=TRUE)
[1] 0.4865829
> |
```

3. i)

```
#3. Suppose IQ scores are normally distributed with a mean of 100 and a standard deviation
#i. What is the probability that a randomly selected person has an IQ above 130?
#P(X>130)
pnorm(130,mean=100,sd=15,lower.tail=FALSE)

> pnorm(130,mean=100,sd=15,lower.tail=FALSE)
[1] 0.02275013
> |
```

ii)

```
#ii. What IQ score represents the 95th percentile?
#P(X<=b)=0.95%
qnorm(0.95,mean=100,sd=15)

> qnorm(0.95,mean=100,sd=15)
[1] 124.6728
> |
```