Sri Lanka Institute of Information Technology

Lab Submission
Lab sheet 07

IT24102104

SHARVIKA.J

Probability and Statistics - IT2120

B.Sc. (Hons) in Information Technology

```
> setwd("C:\\Users\\ASUS\\Desktop\\IT24102104")
> #part 1
> #P(X<=10)
> punif(10,min=0,max=30,lower.tail=TRUE)
[1] 0.3333333
> 1- punif(20,min =0,max=30,lower.tail = TRUE)
[1] 0.3333333
> punif(20,min =0,max=30,lower.tail =FALSE)
[1] 0.3333333
> #part 1
> #P(X<=3)
> pexp(3, rate=0.5,lower.tail=TRUE)
[1] 0.7768698
```

```
> #part 2
> #P(X>4)=1-P(X<=4)
> 1- pexp(4,rate=0.5,lower.tail= TRUE)
[1] 0.1353353
> pexp(4,rate =0.5,lower.tail= FALSE)
[1] 0.1353353
> #Part 3
> #P(2<X<4)= P(X<=4)-P(X<=2)
> pexp(4,rate =0.5, lower.tail= TRUE)-pexp(2,rate=0.5,lower.tail=TRUE)
[1] 0.2325442
> #part 1
> #P(X>=37.9)= 1-P(X<37.9)
> 1-pnorm(37.9, mean=36.8,sd=0.4,lower.tail=TRUE)
[1] 0.002979763
> #part 2
> P(36.4<X<36.9)= P(X<=36.9)-P(X<=36.4)
```

```
> pnorm(36.9,mean=36.8,sd=0.4,lower.tail=TRUE)-pnorm(36.4,mean=36.8,sd=0.4,lower.tail=TRUE)
[1] 0.4400511
> #part 3
> #P(X<b)=1.2%=0.012
> qnorm(0.012,mean=36.8,sd=0.4,lower.tail=TRUE)
[1] 35.89715
> #part 4
> #P(X>b)=1.0%=0.01
> qnorm(0.01,mean=36.8,sd=0.4,lower.tail=FALSE)
[1] 37.73054
```

```
> #Uniform Distribution
> #a=0,b=40 minutes
> #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)
[1] 0.375
> #P(X<=2)
> pexp(2, rate=1/3, lower.tail=TRUE)
[1] 0.4865829
> #part 1
> #P(X > 130) = 1 - P(X <= 130)
> 1 - pnorm(130, mean=100, sd=15, lower.tail=TRUE)
[1] 0.02275013
> #part 2
> qnorm(0.95, mean=100, sd=15, lower.tail=TRUE)
[1] 124.6728
```