Faculty of Computing

Year 2 Semester 1 (2025)

IT2120 - Probability and Statistics   Lab Sheet 07

1.

```
setwd("C:\\Users\\Thisaja\\Downloads\\IT24610818_Lab07")

#Question 01

#Random variable x follows a uniform distribution with a=0 and b=40

#Probability that the train arrives between 8:10 a.m. and 8:25 a.m :
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.

```
#Question 02

#Random variable x has exponential distribution with lambda=0.34

#Probability that an update will take at most 2 hours :
pexp(2,rate = 0.334,lower.tail = TRUE)

> pexp(2,rate = 0.334,lower.tail = TRUE)
[1] 0.487267
```

3.

```
#Question 03

#Random variable x has normal distribution with mean=100 and standard deviation=15

#i.Probability that a randomly selected person has an IQ above 130 :
1-pnorm(130,mean = 100, sd=15, lower.tail = TRUE)

> #i.Probability that a randomly selected person has an IQ above 130 :
> 1-pnorm(130,mean = 100, sd=15, lower.tail = TRUE)
[1] 0.02275013


#ii.IQ Score represents the 95th percentile :
qnorm(0.95,mean = 100, sd=15,lower.tail = TRUE)

> #ii.IQ Score represents the 95th percentile :
> qnorm(0.95,mean = 100, sd=15,lower.tail = TRUE)
[1] 124.6728
```