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## LAB WEEK – 6 ASSESSMENT

**1)**

**AIM:**

To find the binomial distribution value for the given x, n and p values.

**SYNTAX:**

d = dbinom(x,n,p)

**CODE:**

```
#Given
n=20
p=0.15
x=3

#Soltuion
d=dbinom(3,n,p)
sprintf("The Prob that in 20 light changes there will be exactly 3 cars with red light is %.4f",d)
```

**OUTPUT:**

```
> #Given
> n=20
> p=0.15
> x=3
>
> #Soltuion
> d=dbinom(3,n,p)
> sprintf("The Prob that in 20 light changes there will be exactly 3 cars with red light is %.4f",d)
[1] "The Prob that in 20 light changes there will be exactly 3 cars with red light is 0.2428"
>
```

**2)**

**AIM:** To find the Poisson distribution value for the given x and lambda values.

**SYNTAX:**

d=dpois(x,lambda)

**CODE:**

```
#Given
lambda=5
x=3

#Solution
d=dpois(x,lambda)
sprintf("The Probability that there are exactly 3 accidents there this year is %.4f",d)
```

**OUTPUT:**

```
> #Given
> lambda=5
> x=3
>
> #Solution
> d=dpois(x,lambda)
> sprintf("The Probability that there are exactly 3 accidents there this year is %.4f",d)
[1] "The Probability that there are exactly 3 accidents there this year is 0.1404"
>
```

**3)**

**AIM:**

To find the binomial distribution value for the given x, n and p values.

**SYNTAX:**

a=dbinom(0,n,p)

b=sum(dbinom(0:1,n,p))

c=sum(dbinom(0:2,n,p))

**CODE:**

```
#Given
p=0.05
n=20

#Solution
a=dbinom(0,n,p)
sprintf("The Probability that less than 1 site exceeds the
        recommended level of dioxin is %.4f",a)
```

```
b=sum(dbinom(0:1,n,p))
sprintf("The Probability that less than or equal to 1 site exceeds the
        recommended level of dioxin is %.4f",b)
c=sum(dbinom(0:2,n,p))
sprintf("The Probability that at most 2 sites exceed the
        recommended level of dioxin is %.4f",c)
```

**OUTPUT:**

```
> #Given
> p=0.05
> n=20
>
> #Solution
> a=dbinom(0,n,p)
> sprintf("The Probability that less than 1 site exceeds the recommended level of dioxin is %.4f",a)
[1] "The Probability that less than 1 site exceeds the recommended level of dioxin is 0.3585"
> b=sum(dbinom(0:1,n,p))
> sprintf("The Probability that less than or equal to 1 site exceeds the recommended level of dioxin is %.4
f",b)
[1] "The Probability that less than or equal to 1 site exceeds the recommended level of dioxin is 0.7358"
> c=sum(dbinom(0:2,n,p))
> sprintf("The Probability that at most 2 sites exceed the recommended level of dioxin is %.4f",c)
[1] "The Probability that at most 2 sites exceed the recommended level of dioxin is 0.9245"
>
```

**4)**

**AIM:**

To find the Poisson distribution value for the given x and lambda values.

**SYNTAX:**

a=dpois(x,lambda)

b=1-dpois(x=0,lambda)

c=dpois(x=6,2*lambda)

**CODE:**

```
#Given
lambda=4
x=3

#Solution
a=dpois(x,lambda)
sprintf("The Probability that it emits 3 particles during 5 seconds is %.4f",a)
b=1-dpois(x=0,lambda)
sprintf("The Probability that it emits at least one particle during a 5- second period is %.4f",b)
c=dpois(x=6,2*lambda)
sprintf("During ten seconds, the probability that 6 particles are emitted is %.4f",c)
```

**OUTPUT:**

```
> #Given
> lambda=4
> x=3
>
> #Solution
> a=dpois(x,lambda)
> sprintf("The Probability that it emits 3 particles during 5 seconds is %.4f",a)
[1] "The Probability that it emits 3 particles during 5 seconds is 0.1954"
> b=1-dpois(x=0,lambda)
> sprintf("The Probability that it emits at least one particle during a 5- second period is %.4f",b)
[1] "The Probability that it emits at least one particle during a 5- second period is 0.9817"
> c=dpois(x=6,2*lambda)
> sprintf("During ten seconds, the probability that 6 particles are emitted is %.4f",c)
[1] "During ten seconds, the probability that 6 particles are emitted is 0.1221"
```

**5)**

**AIM:** To find the Poisson distribution value for the given x and lambda values.

**SYNTAX:**

ans=1-dpois(x,lambda)

**CODE:**

```
#Given
x1=75
l1=5000
l2=200

#Solution
x2=(x1/l1)*l2
lambda=3
sprintf("The expected number of larvae in the flask %d",lambda)
x=0
ans=1-dpois(x,lambda)
sprintf("The probability that the flask contains at least one mosquito lava is %.2f",ans)
```

**OUTPUT:**

```
> #Given
> x1=75
> l1=5000
> l2=200
>
> #Solution
> x2=(x1/l1)*l2
> lambda=3
> sprintf("The expected number of larvae in the flask %d",lambda)
[1] "The expected number of larvae in the flask 3"
> x=0
> ans=1-dpois(x,lambda)
> sprintf("The probability that the flask contains at least one mosquito lava is %.2f",ans)
[1] "The probability that the flask contains at least one mosquito lava is 0.95"
```