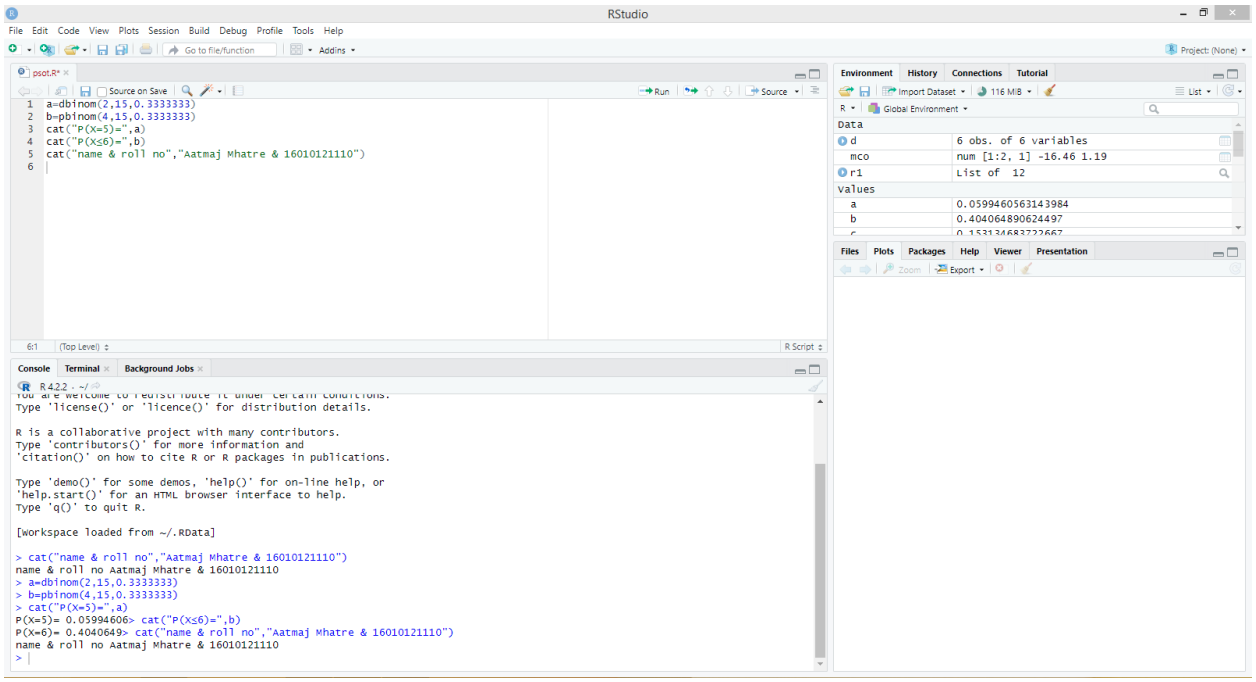
Aatmaj K Mhatre Batch B2 Rollno 16010121110

Q)33 Binomial

Find the Binomial distribution if the mean is 5 & variance is 10/3. Find P(x = 2) , P(x 4)

Mean is 5
Variance is 10/3
hence
np=5
npq=10/3
q=⅔
p=⅓
n=15

a=dbinom(2,15,0.3333333)
b=pbinom(4,15,0.3333333)
cat("P(X=5)=",a)
cat("P(X≤6)=",b)
cat("name & roll no","Aatmaj Mhatre & 16010121110")




```
> cat("name & roll no","Aatmaj Mhatre & 16010121110")
```

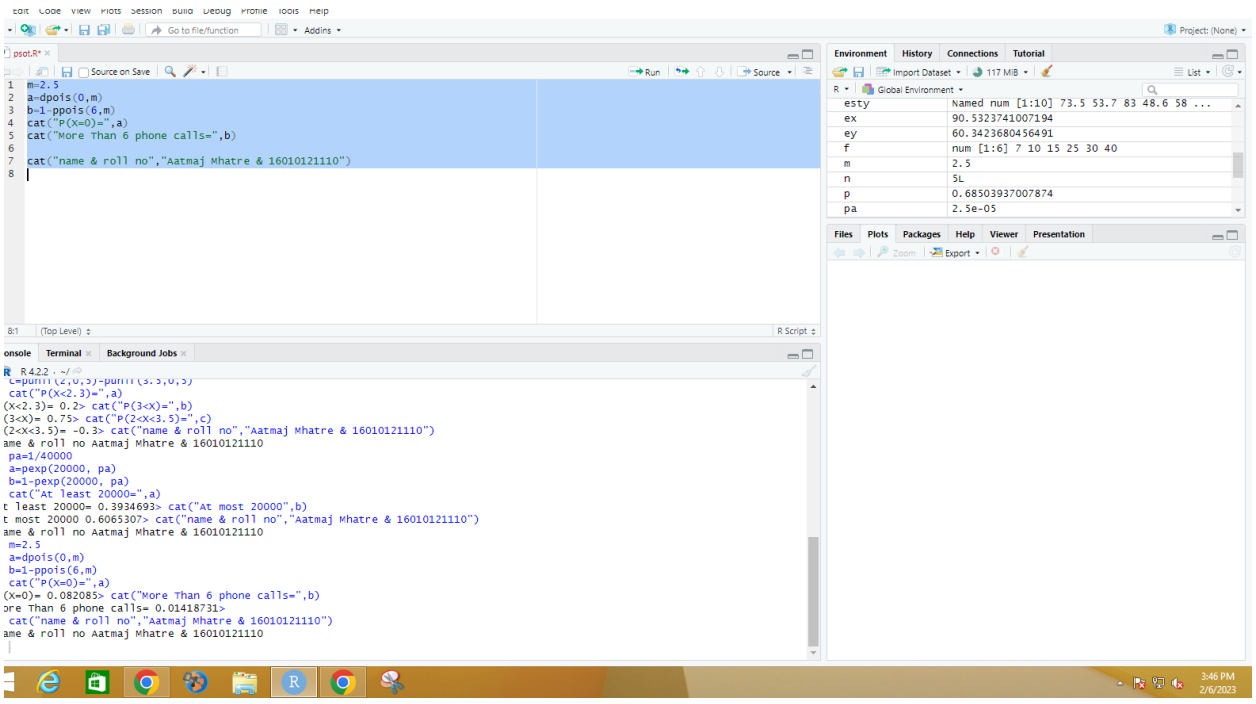
```
name & roll no Aatmaj Mhatre & 16010121110
> a=dbinom(2,15,0.3333333)
> b=pbinom(4,15,0.3333333)
> cat("P(X=5)=",a)
P(X=5)= 0.05994606> cat("P(X≤6)=",b)
P(X=6)= 0.4040649> cat("name & roll no","Aatmaj Mhatre & 16010121110")
name & roll no Aatmaj Mhatre & 16010121110
```

Q) 63 poisson

Between the hours of 2 & 4 P.M. the average number of phone calls per minute coming in to the switchboard of a company is 2.5, find the probability that during a particular minute there will be i) no phone calls at all ii) more than 6 calls.

m=2.5
a=dpois(0,m)
b=1-ppois(6,m)
cat("P(X=0)=",a)
cat("More Than 6 phone calls=",b)

cat("name & roll no","Aatmaj Mhatre & 16010121110")

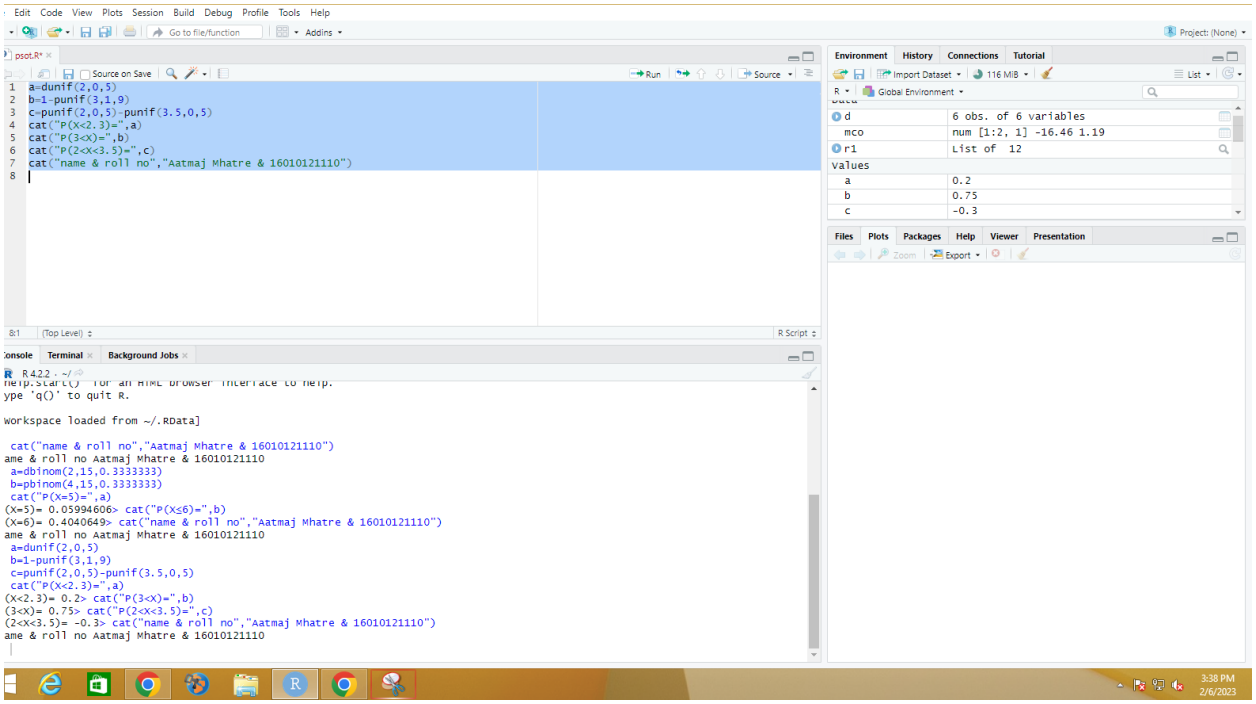


```
> m=2.5
> a=dpois(0,m)
> b=1-ppois(6,m)
> cat("P(X=0)=",a)
P(X=0)= 0.082085> cat("More Than 6 phone calls=",b)
More Than 6 phone calls= 0.01418731>
> cat("name & roll no","Aatmaj Mhatre & 16010121110")
name & roll no Aatmaj Mhatre & 16010121110
```

Q) 109 Uniform distribution

Suppose that for a certain company , the conference time, X has a uniform distribution over interval (0,5)hrs (1) what is pdf of X (2) . Find the probability that any conference lasts atleast 3hrs (3) Find the probability that any conference lasts for atleast 2hrs ,but does not exceed more than 3.5 hrs

```
a=dunif(2,0,5)
b=1-punif(3,1,9)
c=punif(3.5,0,5)-punif(2,0,5)
cat("P(X<2.3)=",a)
cat("P(3<X)=",b)
cat("P(2<X<3.5)=",c)
cat("name & roll no","Aatmaj Mhatre & 16010121110")
```

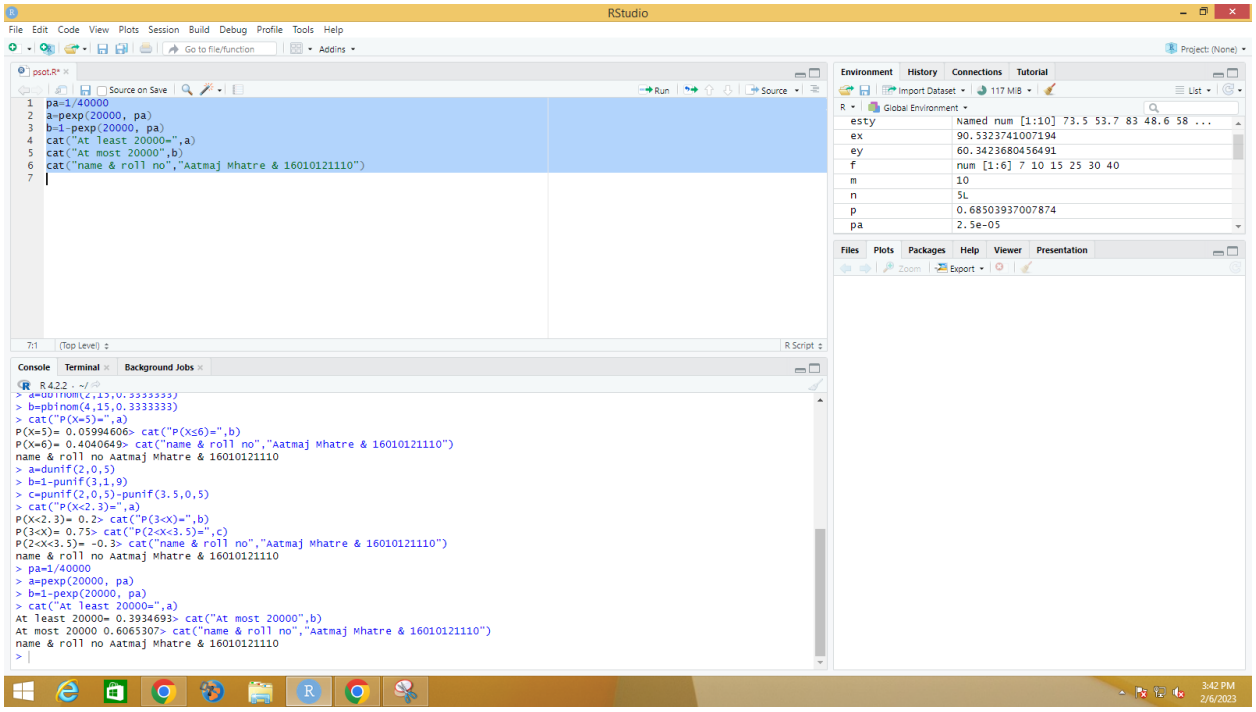



```
> a=dunif(2,0,5)
> b=1-punif(3,1,9)
> c=punif(2,0,5)-punif(3.5,0,5)
> cat("P(X<2.3)=",a)
P(X<2.3)= 0.2> cat("P(3<X)=",b)
P(3<X)= 0.75> cat("P(3.5<X<2)=",c)
P(2<X<3.5)= 0.3> cat("name & roll no","Aatmaj Mhatre & 16010121110")
name & roll no Aatmaj Mhatre & 16010121110
```

Q) 116 Exponential distribution

The mileage which car owners get with a certain kind of radial tire is a random variable having an exponential distribution with mean40,000km. Find the probability that one of these tires will last (i) atleast 20,000km (ii) atmost 20,000km

```
pa=1/40000
a=pexp(20000, pa)
b=1-pexp(20000, pa)
cat("At least 20000=",a)
cat("At most 20000",b)
cat("name & roll no","Aatmaj Mhatre & 16010121110")
```




```
> pa=1/40000
> a=pexp(20000, pa)
> b=1-pexp(20000, pa)
> cat("At least 20000=",a)
At least 20000= 0.3934693> cat("At most 20000",b)
At most 20000 0.6065307> cat("name & roll no","Aatmaj Mhatre &
16010121110")
name & roll no Aatmaj Mhatre & 16010121110
```

>