PROBABILITY & STATISTICS

LAB - 5

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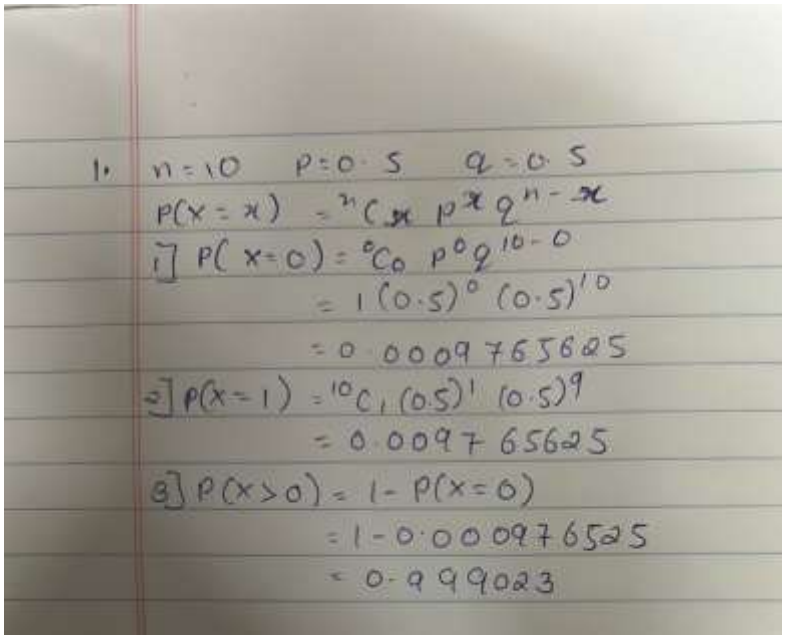
K068

#1

```
pbinom(0,10,0.5)

pbinom(1,10,0.5) - pbinom(0,10,0.5)

pbinom(1,10,0.5,lower.tail = FALSE) + pbinom(1,10,0.5) - pbinom(0,10,0.5)
```

OUTPUT:

```
> #1
> pbinom(0,10,0.5)
[1] 0.0009765625
> pbinom(1,10,0.5) - pbinom(0,10,0.5)
[1] 0.009765625
> pbinom(1,10,0.5,lower.tail = FALSE) + pbinom(1,10,0.5) - pbinom(0,10,0.5)
[1] 0.9990234
```



#2

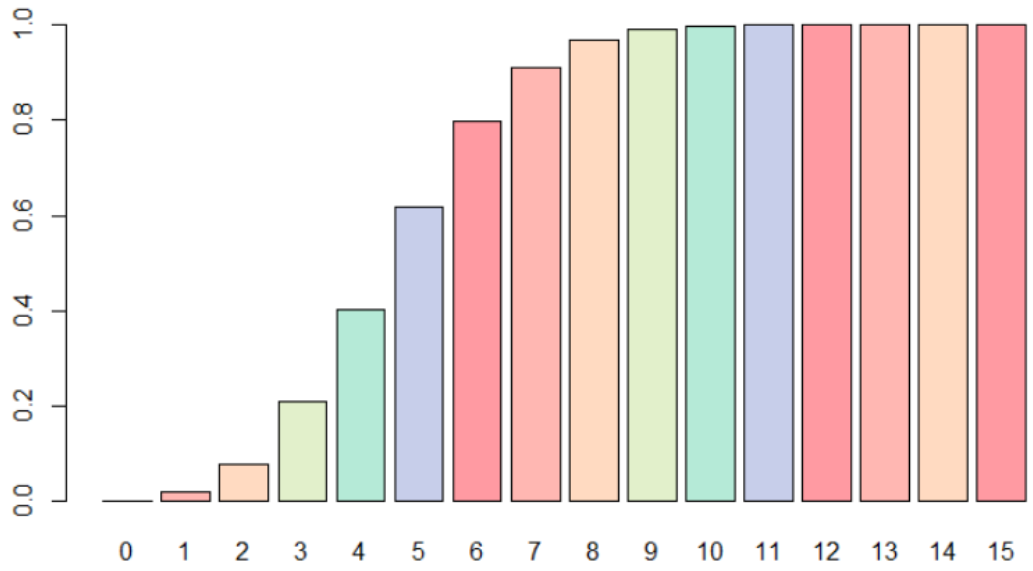
```
q = (10/3)/5

p = 1 - q

n = 5/p

x = seq(0, 15, by = 1)
```

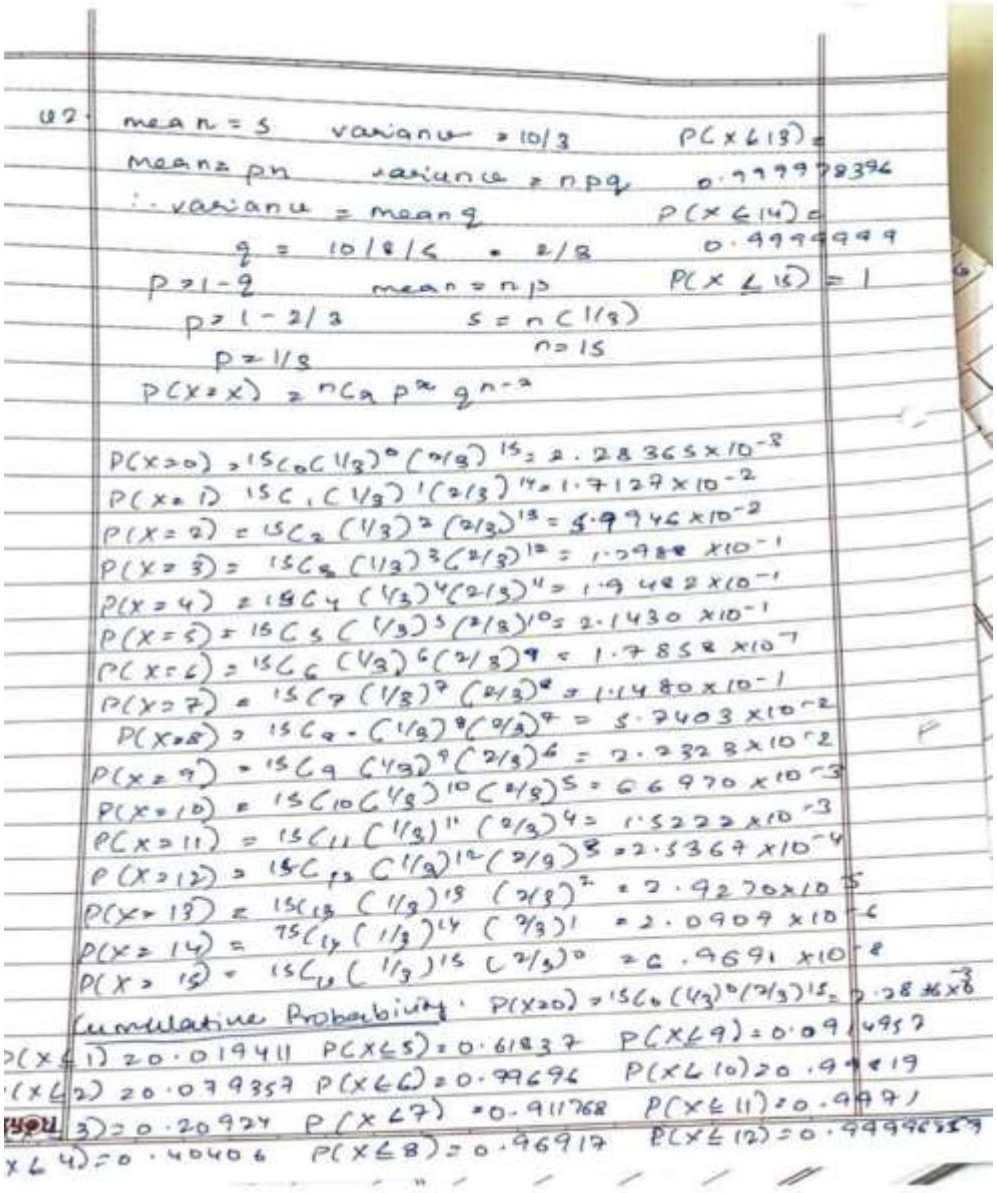
```
y = dbinom(x, 15, 1/3)

print(y)

barplot(y, names.arg = x)

a = pbinom(x, 15, 1/3)

barplot(a, names.arg = x)
```

OUTPUT:

```
> #2
> q = (10/3)/5
> p = 1 - q
> n = 5/p
> x = seq(0, 15, by = 1)
> y = dbinom(x, 15, 1/3)
> print(y)
 [1] 2.283658e-03 1.712744e-02 5.994603e-02 1.298831e-01 1.948246e-01 2.143071e-01 1.785892e-01 1.148074e-01
 [9] 5.740368e-02 2.232365e-02 6.697095e-03 1.522067e-03 2.536779e-04 2.927052e-05 2.090752e-06 6.969172e-08
> barplot(y, names.arg = x, col = c("#FF9AA2", "#FFB7B2", "#FFDAC1", "#E2F0CB", "#B5EAD7",
+                                   "#C7CEEA", "#FF9AA2", "#FFB7B2", "#FFDAC1", "#E2F0CB",
+                                   "#B5EAD7", "#C7CEEA", "#FF9AA2", "#FFB7B2", "#FFDAC1"))
> a = pbinom(x, 15, 1/3)
> barplot(a, names.arg = x, col = c("#FF9AA2", "#FFB7B2", "#FFDAC1", "#E2F0CB", "#B5EAD7",
+                                   "#C7CEEA", "#FF9AA2", "#FFB7B2", "#FFDAC1", "#E2F0CB",
+                                   "#B5EAD7", "#C7CEEA", "#FF9AA2", "#FFB7B2", "#FFDAC1"))
```

BARPLOT:



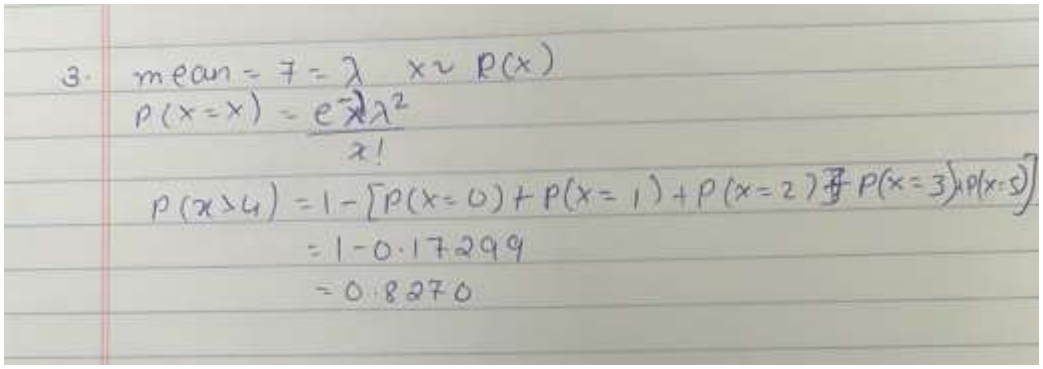


#3

```
x = ppois(4, 7, lower.tail = FALSE)

print(x)
```

OUTPUT:

```
> #3
> x = ppois(4, 7, lower.tail = FALSE)
> print(x)
[1] 0.8270084
```



#4

```
x = ppois(2, 7.6)

y = ppois(3, 7.6) - x

print(x)
```

OUTPUT:

```
> #4
> x = ppois(2, 7.6)
> y = ppois(3, 7.6) - x
> print(x)
[1] 0.01875692
```