

21BDS0340

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Probability and Statistics Lab

Lab Assessment – III

### **Part a**

Code:

```
print(paste("All bulbs good: ", dbinom(20, 20, 0.1)))
print(paste("At most 3 defective bulbs: ", pbinom(3, 20, 0.1)))
print(paste("Exactly 3 defective bulbs: ", dbinom(3, 20, 0.1)))
```

Output:

```
[1] "All bulbs good: 1.000000000000001e-20"
[1] "At most 3 defective bulbs: 0.867046676565665"
[1] "Exactly 3 defective bulbs: 0.190119871376199"
```

### **Part b**

Code:

```
print(paste("Exactly 3 red balls: ", dpois(3, 50 / 1000 * 60)))
print(paste("Not more than 3 red balls: ", ppois(3, 50 / 1000 * 60)))
```

Output:

```
[1] "Exactly 3 red balls: 0.224041807655388"
[1] "Not more than 3 red balls: 0.647231888782231"
```

### **Part c**

Code:

```
print(paste("More than 2150 hours: ", 1 - pnorm(2150, 2040, 60)))
print(paste("Less than 1050 hours: ", pnorm(1950, 2040, 60)))
print(paste(">1920 and <2160 hours: ", pnorm(2160, 2040, 60) - pnorm(1920, 2040, 60)))
```

Output:

```
[1] "More than 2150 hours: 0.0333765075848172"
[1] "Less than 1050 hours: 0.0668072012688581"
[1] ">1920 and <2160 hours: 0.954499736103642"
```