Government 10: Quantitative Political Analysis

Sean Westwood

Question 1

Will this run?

```
t.test(mto$complier[mto$treatment == 1],
mto$complier[mto$treatment == 0], conf.level = 0.95)
```

Question 2

When X is a binary variable, the slope coefficient of a linear regression model with X as a predictor is numerically equivalent to the _____ for the two groups of X.

Question 3

The t-distribution converges on a normal distribution as the _____ increases.

Question 4

Will this run?

```
results <- round(NA, 10)
```

Question 5

When converting a string to a date, what order should the month, year and day be in?

Question 6

Will this run?

papers$hispanic[papers$gender == “male”,] <- “Yes”

Question 7

Will this run?

a <- 19 b <- 7

a <- b - a

Question 8

Predicting Obama as the winner of a state where he actually lost is an example of a:

A. false negative
B. false positive
C. loss
D. root-mean-squared error

Question 9

Will this run?

lm(data$miles ~ data$efficiency)

Question 10

Subtracting the mean of one group from the mean of another group gives us the _____ of group membership.

Question 11

What function do we use to split a variable into any N number of even groups?

Question 12

Will this run?

model.happiness <- lm(mto$wellbeing_zscore ~ group + complier + site)

Question 13

Will this run?

```
model <- lm(y ~ x1, x2, x3, data = df)
```

Question 14

The _____ is an approximation of the standard deviation of the sampling distribution.

Question 15

Will this code run?

mto$treatment <- mto[mto$group == “control” & mto$group == “lpv”]

Question 16

If we had two dummy variables var1 and var2 and we wanted to create a single variable when either were true, would this work?

```
data$varnew <- 0
data$varnew[data$var1 == 1 | data$var2 == 1] <- 1
```

Question 17

To get the number of observations in a vector we use _____ and to get the number of observations in a dataframe we use _____.

Question 18

Will this code extract the lower confidence interval from a t-test?

```
t <- t.test(d$outcome~d$group)
t$p
```

Question 19

For a linear regression model, how do we view p-values of coefficients?

A. lm(...)
B. summary(lm(...))
C. coef(lm(...))
D. table(lm(...))

Question 20

If I am using a regression model to understand the relationship between the percent of the population that is under 25 (IV) and the percent voting in presidential elections (DV), it is impossible to calculate a result where 256% of the population are under 25. True or false.

Question 21

Which of the following functions do not automatically remove NA values?

A. lm()
B. table()
C. mean()
D. mode()

Question 22

True or false: This identifies the bottom decile:

quantile(data$vote, probs = .9)

Question 23

We use which function to load data?

A. read_csv(...)
B. read(...)
C. open(...)
D. read.csv(...)

Quesiton 24

Would this test for significant differences in hope for those in an experiment with a treatment and control condition?

t.test(data$treatment[data$hope], data$treatment[data$hope])

Question 25

Is it possible to have a confidence interval that includes zero and a p-value that is less than .05?

Question 26

Will this run?

```
data <- c("1", "2", "3")
mean(data)
```

Question 27

You have a dataframe df with missing values. Does this code subset the dataframe to include only rows where there are no missing values in the column age?

```
df_no_missing_age <- df[!is.na(df$age), ]
```

Question 28

Given a dataframe df with columns y, x1, and x2, we run a linear regression of y on x1 and x2 for observations where x1 is greater than 10. Will this do what we want?

lm(y ~ x1 + x2, data = df[df$x1 > 10,])

Question 29

In the context of a linear regression model, the _____ represents the true value of the relationship between the predictor and the response variable in the population, while the _____ represents the value calculated from the sample data.

Question 30

_____ is the probability that we observe a value at least as extreme as the one we observed.

Bonus 1

Who is The Mother of Dragons?

Answers

1. Yes
2. difference-in-means
3. N/degrees of freedom
4. Yes; makes no sense
5. Year, month, day
6. No; remove the comma within the brackets
7. Yes
8. False positive
9. Yes
10. ATE

Answers

11. quantile()
12. No; no dataframe specified
13. No; commas not plus signs
14. Standard error of sample mean
15. Yes
16. Yes
17. length(); nrow()
18. No; t$p.value
19. summary(lm(...))
20. false

Answers

21. mean(); mode()
22. false; top decile
23. read.csv(...)
24. No; many things wrong
25. No
26. No; strings not integers
27. Yes
28. Yes
29. Parameter; estimate
30. P-value

Answers (Bonus)

B1. Daenerys Targaryen