

1. Poisson distribution is specified by

- 10/12 ☒ A 1 parameter  
0/12 ☐ B 2 parameters  
2/12 ☐ C 3 parameters  
0/12 ☐ D Poisson distribution does not have parameters  
0/12 ☐ E I do not know

2. The type of dependent variable in Poisson Regression is

- 0/12 ☐ A Integer  
12/12 ☒ B Count  
0/12 ☐ C Ratio  
0/12 ☐ D Interval  
0/12 ☐ E I do not know  
0/12 ☐ F Binary

3. Overdispersion in Poisson Regression occurs when

- 2/12 ☐ A  $\text{var}(Y|X) > \text{var}(Y)$   
10/12 ☒ B  $\text{var}(Y|X) > \text{mean}(Y|X)$   
0/12 ☐ C Variance is decreasing  
0/12 ☐ D I do not know

4. The model of Poisson Regression is specified by the following formula

- 8/12 ☒ A  $\ln(\lambda) = xb$   
1/12 ☐ B  $\ln(y) = e^{(xb)}$   
1/12 ☐ C  $\ln(y) = e^{(xb)} / (1 + e^{(xb)})$   
2/12 ☐ D  $\ln(\lambda) = e^{(xb)} / (1 + e^{(xb)})$   
0/12 ☐ E I do not know

5. We can estimate Poisson Regression in R using function

0/12 ☐ A lm()

10/12 ☒ B glm()

0/12 ☐ C flm()

2/12 ☐ D poisson()

0/12 ☐ E I do not know

6. Which one of these is the measure for goodness of fit for Poisson Regression?

1/12 ☐ A Ordinal  $R^2$

11/12 ☒ B Chi-square

0/12 ☐ C I do not know

0/12 ☐ D There are not measure for it

7. Which one of these is the correct interpretation of the coefficient of Poisson Regression?

1/12 ☐ A For a 1-unit increase in X, we expect a b1 unit increase in Y.

9/12 ☒ B For a 1-unit increase in X, we expect b1 percentage increase in Y.

1/12 ☐ C For a 1-percentage increase in X, we expect b1 percentage increase in Y.

1/12 ☐ D For a 1-percentage increase in X, we expect b1 unit increase in Y.

0/12 ☐ E I do not know

8. Count data is continuous

4/12 ☐ A Yes

8/12 ☒ B No

0/12 ☐ C I do not know

9. The logistic model is estimated by way of

0/12 ☐ A Ordinary least squares

12/12 ☒ B Maximum likelihood estimation

0/12 ☐ C Negative binomial distribution

0/12 ☐ D I do not know

**10.** As a result of estimation of coefficients

- 6/12 **A** We do not have the formula, an iterative algorithm must be used
- 2/12 **B** The explicit formula of coefficients exists
- 1/12 **C** I do not know
- 3/12 **D** We can obtain different values for coefficients

**11.** In Poisson regression...

- 3/12 **A** The asymptotic distribution of the maximum likelihood estimates is multivariate normal.
- 3/12 **B** The distribution of the maximum likelihood estimates is multivariate normal.
- 6/12 **C** The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.
- 0/12 **D** I do not know

**12.** Pseudo R-Squared Measures are calculated based on (if any)

- 3/12 **A** Deviance
- 9/12 **B** Chi-squared value
- 0/12 **C** I do not know

**13.** The formula for the raw residual is

- 7/12 **A** The difference between the actual response and the estimated value from the model
- 2/12 **B** The squared difference between the actual response and the estimated value from the model
- 3/12 **C** The difference between the actual response and the estimated value from the model by dividing by the standard deviation
- 0/12 **D** I do not know

**14.** Which of these is NOT the type of residuals

- 2/12 **A** Deviance Residual
- 1/12 **B** Pearson Residual
- 1/12 **C** Raw Residual
- 8/12 **D** Poisson Residual
- 0/12 **E** I do not know

15. In the case of intercept-only model

- 8/12 ☒ A The mean of the dependent variable equals the exponential value of the intercept
- 2/12 ☐ B The mean of the dependent variable equals the intercept
- 2/12 ☐ C The mean of the dependent variable equals 0
- 0/12 ☐ D I do not know

16.  $\ln(\lambda) = 0.6 - 0.2 * \text{female}$  [ $\lambda$  = the average number of articles] Note:  $e^{(-0.2)}=0.78$

- 2/12 ☐ A One unit increase in female brings a 0.2 decrease in  $\ln(\lambda)$ .
- 1/12 ☐ B Being female decreases the average number of articles by 0.78 percent
- 9/12 ☒ C Being female decreases the average number of articles by 22%
- 0/12 ☐ D I do not know

17. While running the Poisson Regression we will have never faced with the value of  $\lambda$

- 8/12 ☒ A 0
- 2/12 ☐ B 1
- 2/12 ☐ C 2
- 0/12 ☐ D I do not know

18. Why does not quasi-Poisson model have AIC?

- 10/12 ☒ A Quasi-Poisson is used quasi-likelihood instead of log-likelihood estimates.
- 0/12 ☐ B Quasi-Poisson does not use iterative estimation
- 2/12 ☐ C I do not know

19. Why Poisson regression is called log-linear?

- 6/12 ☒ A Because we use a log link to estimate the logarithm of the average value of the dependent variable
- 1/12 ☐ B Because we use a log values of independent variable
- 5/12 ☐ C Because we use a log value of an independent variable is transformed to linear
- 0/12 ☐ D I do not know

20. Formulate the Null hypothesis for chi-squared and deviance test.

- 5/12 ☐ A The distance between actual and predicted values is insignificant
- 5/12 ☒ B The distance between actual and predicted values is 0
- 2/12 ☐ C There is a significant difference between actual and predicted values.
- 0/12 ☐ D I do not know