LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **STATISTICS**

SECOND SEMESTER – **NOVEMBER 2016**

ST 2817 – CATEGORICAL DATA ANALYSIS

Date: 10-11-2016 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

PART - A

Answer all the questions **(10x2=20 Marks)**

1. State any two real life application of categorical regression model.
2. Define Pearson residual in determining outliers.
3. Define Classification table.
4. Define Sensitivity and Specificity.
5. Define ROC and AUC.
6. Define zero inflated Poisson model.
7. Define the test statistic for testing the significance of individual regression coefficient in Binary Logistic regression.
8. State any two differences between Logit and Probit model.
9. When will you prefer Negative Binomial regression over Poisson Regression?
10. In a Binary logistic regression the Logit value is 2.3 determine P(Y=1).

PART - B

Answer any FIVE questions **(5x8=40 Marks)**

11. Explain I x J Contingency table and explain the inference procedure for testing the dependency between two categorical variables with I X J contingency table.
12. Explain General Linear Model in detail.
13. Explain any four association measures based on 2x2 contingency table.
14. Explain complete separation and quasi separation of data points in detail.
15. Explain Simpsons paradox with an example.
16. Explain concordance, discordance, Somers's D and Odds ratio in binary logistic regression model.
17. Explain Poisson regression model in detail.
18. Explain the methods of model validation.

PART - C

Answer any TWO questions **(2x20=40 Marks)**

19. i) Explain Negative Binomial regression model in detail.
    ii) Explain Multinomial regression model in detail.
20. i) Explain Cumulative Logistic regression in detail.
    ii) Explain Log-linear regression model and state its use.
21. i) Explain Binary Logistic regression model form and determination of optimal cut value.
    ii) Explain Probit model in detail.
22. i) Explain the steps involved in construction of Gains chart and explain its use.
    ii) Explain Conditional Logit and Mixed Logit model and provide real life situation where these model can be applied.

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