SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
M.Sc. Biostatistics - END SEMESTER EXAMINATIONS APRIL - 2024
SEMESTER - II
20PBSET2002 - Categorical Data Analysis

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. What is the nature of categorical data, and how does it differ from continuous data?
2. What methods can be used to compare proportions in two-by-two contingency tables? Discuss the difference of proportions, relative risk, and odds ratio.
3. Explain the relationship between odds ratio and relative risk in I x J contingency tables.
4. Define odds ratio and discuss its properties. How is odds ratio related to relative risk?
5. Differentiate between nominal and ordinal measures of association. How are they used in analyzing contingency tables?
6. Discuss the test of overall regression in logistic regression. What are the different statistical tests used to assess the overall fit of the model?
7. Explain logit models for binary data. How are these models used to analyze 2 x 2 contingency tables?
8. Discuss the significance of logistic regression diagnostics in assessing the model's fit and performance?

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. Discuss the concept of partitioning chi-squared. How does it help in understanding the sources of association in contingency tables?
10. Explain the concept of homogeneous association in three-way tables. How is it assessed using the Cochran-Mantel-Haenszel methods?
11. Describe the binomial GLM for 2 x 2 contingency tables. How does it model the relationship between categorical variables?

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12. What is the significance of goodness of fit in logistic regression? Discuss the different statistical tests used for assessing goodness of fit, including the Wald test and deviance statistic.

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. How are odds ratio and relative risk used to measure the strength of association between variables in categorical data analysis?

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