

M.Sc (BIOSTATISTICS) DEGREE EXAMINATION

SECOND YEAR

**Paper III – Optional – I – CATEGORICAL AND SURVIVAL DATA
ANALYSIS**

Q.P. Code : 282857

Time : Three hours

Maximum : 100 marks

Answer All questions.

I. Essays:

(2 X 20=40)

1. Explain briefly the inferential methods associated with multi-category logit model for nominal, ordinal and interval data.
2. Explain with an example, the application of generalized Wilcoxon test for censored data.

II. Write Short Notes on :

(10X 6 = 60)

1. Sampling distributions for categorical data.
2. Collapsibility of contingency tables.
3. Nelson and Peterson estimates of Hazard function.
4. Types of censoring.
5. Weibull distribution.
6. Log (log survival) plot.
7. Multinomial sampling.
8. Relationship between odds ratio and relative risk.
9. Logistic regression model.
10. Time dependant covariates.

[KZ 1011]

Sub. Code: 2857

**M.Sc NON-MEDICAL DEGREE EXAMINATION
SECOND YEAR**

BRANCH II - BIOSTATISTICS

PAPER III – OPTIONAL – I

CATEGORICAL AND SURVIVAL DATA ANALYSIS

Q.P. Code : 282857

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Log linear models	17	40	20
2. COX Proportional hazard model	17	40	20

II. Write notes on :

1. Analysis of contingency table	4	10	6
2. Measures of Association	4	10	6
3. Measures of Agreement	4	10	6
4. Logistic regression for ordinal data	4	10	6
5. Sampling Distribution	4	10	6
6. Comparison of Survival and Hazard functions	4	10	6
7. Types of censoring	4	10	6
8. Weibull Distribution	4	10	6
9. Generalized Wilcoxon test	4	10	6
10. Log(log(survival) Plot	4	10	6

[LB 1012]

OCTOBER 2012

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BRANCH II - BIOSTATISTICS
PAPER III – OPTIONAL – I
CATEGORICAL DATA AND SURVIVAL ANALYSIS
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Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

Pages Time Marks
(Max.)(Max.)(Max.)

1. Explain Cox's proportional hazard model for censored and uncensored data. 17 40 20
2. Derive the logistic regression model and mention its properties. Also explain multinomial logistic models. 17 40 20

II. Write notes on :

1. Explain generalized Wilcoxon test for uncensored data. 4 10 6
2. Derive Log – rank test statistic. 4 10 6
3. Estimate the cumulative hazard function. Also find 95% confidence interval for the same. 4 10 6
4. Given this small data set:
9 13 13+ 18 23 28+ 31 34 45+ 48 161+ 4 10 6
5. Describe stratified analysis. 4 10 6
6. Describe marginal and conditional odds ratio. 4 10 6
7. A prospective cohort study to investigate the effect of aspirin on heart disease. A group of patients who are at risk for a heart attack are randomly assigned to either placebo or aspirin at the end of on year, the number of patients suffering a heart attack is recorded. 4 10 6

Group	Yes	No
Placebo	20	80
Aspirin	15	135

Find odds ratio and relative risk for the above table.

8. Explain Yate's correction for continuity in analyzing contingency tables. 4 10 6
9. Explain Kappa and Weighted Kappa measure. 4 10 6
10. Describe McNemar's test and write its uses. 4 10 6
