



School of Digital Health

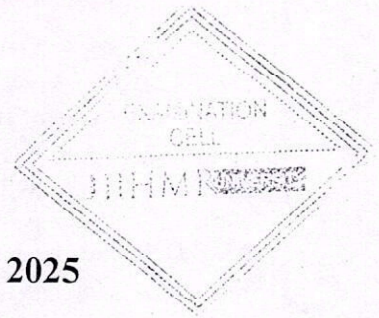
MBA Healthcare Analytics

Batch-01st (2024-2026)

First Year, Term 2, End Term Examinations, March 2025

CC – 615 Data Analysis

Enrolment No.:



Time - 3 Hour

Maximum Marks: 50 (Minimum Marks: 20)

Instructions to students:

- This question paper contains 3 printed pages.
- Don't write anything on the Question Paper except writing your Enrolment No.

Part A

(Maximum Marks: 5)

Q1. Choose the correct option for the following questions (1 mark each):

- Which of the following is an assumption of inferential statistics?
 - Data must be qualitative
 - Data should follow a normal distribution
 - Sample size should always be greater than 500
 - All variables should be categorical
- Which statistical test is used to determine the association between two categorical variables?
 - t-test
 - ANOVA
 - Chi-square test
 - Pearson's correlation
- Which of the following is a non-parametric test?
 - Paired t-test
 - Mann-Whitney U test
 - One-way ANOVA
 - Linear regression
- In simple linear regression, which of the following is assumed?
 - The dependent variable is categorical
 - There is a linear relationship between dependent and independent variables
 - The independent variable is categorical
 - The error terms do not need to be normally distributed
- What does an odds ratio greater than 1 indicate in binary logistic regression?
 - The predictor variable decreases the likelihood of the event occurring
 - The predictor variable has no effect on the event
 - The predictor variable increases the likelihood of the event occurring
 - The model is invalid

Part B**(Maximum Marks: 15)****Answer any three of the following questions (5 marks each):****Q2.** Explain the key assumptions of inferential statistical tests and their importance in data analysis.**Q3.** Describe and interpret the following Output :-**Crosstabulation Table**

	Lung Disease: Yes	Lung Disease: No	Total
Smoker	120	80	200
Non-Smoker	90	210	300
Total	210	290	500

Chi-Square Test Output

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.678	1	0.000
Continuity Correction	24.390	1	0.000
Likelihood Ratio	25.892	1	0.000
Fisher's Exact Test	-	-	-
Linear-by-Linear Association	25.432	1	0.000
Number of Valid Cases	500	-	-

Q4. Compare and contrast parametric and non-parametric tests with examples.**Q5.** Describe assumptions for Binary logistic regression**Part C****(Maximum Marks: 30)****Answer any three of the following questions in detail (10 marks each):****Q6.** Explain the concept of simple and multiple linear regression with real-life healthcare examples.**Q7.** What is multinomial logistic regression? Discuss its application in healthcare data analysis with an example.**Q8.** Interpret binary logistic regression in SPSS using following table**Select Variables:**

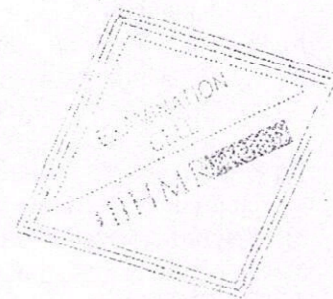
- Dependent Variable:** Lung Disease (Yes = 1, No = 0)
- Independent Variables:** Smoking (Yes = 1, No = 0), Age, BMI

Omnibus Tests of Model Coefficients

Chi-square	df	Sig.
34.891	3	0.000

Model Summary

-2 Log likelihood	Cox & Snell R ²	Nagelkerke R ²
450.789	0.065	0.098



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Variables in the Equation

Predictor	B	S.E.	Wald	df	Sig.	Exp(B) (Odds Ratio)
Smoking (1)	1.345	0.320	17.645	1	0.000	3.84
Age	0.045	0.012	14.123	1	0.000	1.05
BMI	0.030	0.020	2.500	1	0.114	1.03
Constant	-3.210	0.567	32.067	1	0.000	0.04

Q9. Write assumptions for ANOVA and write advantage of Post hoc test along with ANOVA.

