Question Paper

Exam Date & Time: 23-Apr-2018 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER ME - (BIG DATA AND DATA ANALYTICS)
DEGREE EXAMINATION- APRIL/MAY 2018
Monday, April 23, 2018
Time : 10.00 am to 1.00 pm

Multiple Linear Regression and Logistic Regression [BDA 606]

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1) What are the assumptions underlying simple linear regression analysis? How do you interpret the regression coefficients in simple linear regression model? (8)

2) Explain multiple linear regression model (MLRM). State any five assumptions of the MLRM. (8)

3) With an example, explain the role of dummy variables in regression analysis. (8)

4) Write short notes on the concept of multicollinearity. (8)

5) Describe forward selection procedure for variable selection in multiple linear regression. (6)

6) Illustrate the importance of residual analysis in linear regression models. (6)

7) Distinguish between R2 and Adjusted R2. State their importance and limitations. (6)

8) Explain binary logistic regression under the heading (20)

A. Regression model (2 Marks)
B. Estimation of parameters and corresponding confidence interval (6 Marks)
C. Test of significance of the individual regressors (6 Marks)
D. Test of goodness of fit (6 Marks)

9) Compare between Simple linear regression and logistic regression based on, (3)

A. Link function
B. Linear relationship
C. Response variable

10) Show that in logistic regression, the exponential of regression coefficients are odds ratios. (6)

11) What are the assumptions to use logistic regression? (5)

12) Explain the procedure of finding the optimum cut off for classifying subjects estimated probability as having event and not having event in logistic regression analysis. (8)

13) Write the logistic regression model for prediction and find the probability of liver cirhosis given the subject is smoker and alcoholic (8)

Where constant β_0 = -1.43

β_1 = -0.210 for alcohol

β_2 = 0.154 for smoking

Smoking status = 1 for smoker
= 0 for non-smoker

Alcohol status = 1 for alcoholic
= 0 for non-alcoholic.

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