MANIPAL UNIVERSITY

Question Paper

22-Apr-2017 10:42:45
GOWTHAM S

MANIPAL UNIVERSITY

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER MASTER OF ENGINEERING ME (BIG DATA AND DATA ANALYTICS)
DEGREE EXAMINATION- APRIL/ MAY 2017
Saturday, 22, 2017
Time : 10:00 AM - 1:00 PM

Multiple Linear Regression and Logistic Regression [BDA 606]

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

A

Answer all the questions.

1)	State the model and derive the ordinary least square estimators for the parameters of a simple linear regression model	(8)
2)	Give any five assumptions of multiple linear regression model.	(5)
3)	How do you decide whether a fitted multiple linear regression model is significant or not? If the model is significant, explain how you test the significance of individual predictors?	(10)
4)	What is multicollinearity? Describe VIF method used to detect multicollinearity.	(8)
5)	Explain with an example the role of dummy variables in regression analysis.	(8)
6)	Describe backward elimination procedure for variable selection in multiple linear regression.	(6)
7)	Illustrate the importance of residual analysis in linear regression models.	(5)
8)	Differentiate between logistic regression and simple linear regression?	(10)
9)	Explain the use of Wald and Deviance tests in logistic regression analysis.	(10)
10)	Explain Area under the ROC measure of testing goodness of fit of the model in logistic regression.	(10)
11)	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.	(10)
12)	Write the logistic regression model for prediction and find the probability of liver cirhosis given the subject is smoker and alcoholic	(10)

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.