Q1 - Multiple R2 quantifies the proportion of reduction in total sum of squares due to regression

Ans - True

Q2 - Sign of correlation coefficient and regression slope in a simple linear regression problem is the same

Ans - True

Q3 - If two predictors are highly correlated, then including them both in a regression equation might inflate variances of the estimates of regression coefficients

Ans - True

Q4 - In a regression problem error sum of squares is always smaller than sum of squares due to regression

Ans - False

Q5 - In logistic regression Pr(Y = 1) is regressed on the predictors

Ans - False

Q6 - In a multiple regression problem the following is observed.

When Y is regressed on X1 along, R2 = 85%. When Y is regressed on X1 and X2 both, R2 is still 85%. Which of the following statements describe the situation best?

Ans - Correlation between Y and X1 is 0.92 and correlation between X1 and X2 is 100%

Q7 - What is the slope of the line y =  −3.4x − 2.5?

Ans - (minus) 3.4

Q8 - From the following regression equation, calculate LaTeX: \piπ = Pr(Y = 1| x = 10).

Log LaTeX: \frac{\pi\left(x\right)}{\left(1-\pi\left(x\right)\right)}π(x)(1−π(x))= 0.5 + 0.01x

Ans - 0.64

Q9 - In a simple regression problem total sum of squares is 500 and sum of the squared residuals is 100. What is the value of multiple R2 for this regression?

Ans - 80 %

Q10 - Logistic regression is applied when the response Y is binary. In logistic regression a logit transformation of success probability is expressed as a linear function of the predictors because

Ans -

(a) Logit transformation is continuous and its range is from −∞ to +∞

(b) Logit transformation provides a natural interpretation of the regression coefficient in terms of odds ratio

(c) Logit transformation facilitates fitting of a linear regression