

QUESTION 2 (10 MARKS)

Consider the following two regression models:

$$\begin{aligned} \text{Model 1: } Y_i &= \beta_0 + \beta_1 X_i + \beta_2 Z_i + \epsilon_i \\ \text{Model 2: } Y_i &= \beta_0 + \beta_1 X_i + \beta_2 Z_i + \beta_3 W_i + \epsilon_i \end{aligned}$$

where Y_i is the dependent variable, X_i , Z_i and W_i are independent variables, and ϵ_i is the error term. Assume that the error term ϵ_i is normally distributed with mean zero and constant variance.

