Question 2

A case-control study to identify factors that can cause small for gestational age (SGA) was conducted.

- Small for Gestational Age (Yes/No)

Among the factors studied were;

- Age of Respondent in Years
- Race (Malay, Chinese & Others)
- Marital Status (Married & Single)
- Education level (Nil, Primary, Secondary & Tertiary)
- Type of work (Housewife, Office & Fieldwork)
- Number of antenatal visit
- Body Mass Index (calculate using Mothers' Weight in kg & Height in cm)
- Anaemia (Yes/No)
- Pregnancy induced hypertension (Yes/No)
- Gestational Diabetes (Yes/No)
- Chronic maternal illness (Yes/No)
- Prolonged medication (Yes/No)
- Passive Smoking (Yes/No)
- Number of US done
- Sex of baby (Male/Female)

a) Conduct the appropriate bivariate statistical test to find any association between the above risk factors and GROUP (SGA/Normal). Copy and paste the appropriate tables. Discuss in brief.
b) Conduct the appropriate multivariate analysis for the dependent variable GROUP (SGA/Normal) and the following significant independent variables from above (a);
    - Body Mass Index
    - Pregnancy induced hypertension (Yes/No)
    - Prolonged medication (Yes/No)
    - Passive Smoking (Yes/No)

    I. What is meant by multicollinearity? Will this problem occur in this analysis if we included the HEIGHT and WEIGHT in the above ariate analysis? Explain why.
    II. Determine the appropriate model (y=a+bx) to predict the SGA using the above predicting factors. Copy & paste the appropriate tables/charts. Explain your answer in brief.
    III. What is the value of the coefficient of determination?What is your comment on the value?
    IV. Discuss in brief the overall accuracy of this model to predict subjects having SGA. Copy & paste the appropriate tables/charts.