Answer the following questions. Copy and paste the appropriate tables/charts into your answer sheet (use Microsoft Word). Discuss your answers in brief.

Question 1

A study was conducted on 1818 Hulu Langat residents, who were not previously diagnosed as hypertensive, to identify the association between systolic blood pressure (SYSTOLIC) with a few predictors such as Body Mass Index (BMI), age (AGE), height (HEIGHT) and weight (WEIGHT). Create the Body Mass Index (BMI) variable using HEIGHT & WEIGHT.

a. Assume all numerical data are normally distributed. Conduct the appropriate bivariate analysis to demonstrate association between these variable with SYSTOLIC;

- BMI,
- AGE,
- HEIGHT and
- WEIGHT.
- SMOKESTATUS
- DRINKSTATUS

Copy and paste the appropriate tables. Discuss in brief.

b. Conduct the appropriate multivariate analysis for the following

- dependent variable
  - SYSTOLIC
- independent variables;
  - Body Mass Index (BMI),
  - age (AGE),
  - SMOKESTATUS
  - DRINKSTATUS

Create the appropriate dummy variable for SMOKESTATUS and DRINKSTATUS. Use the group with the lowest systolic pressure as the reference group.

I. What is meant by multicollinearity? Will this problem occur in this analysis if we included the HEIGHT and WEIGHT in the multivariate analysis? Explain why.

II. Determine the appropriate model (e.g.: y = a + bx) to predict the SYSTOLIC using the 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 your analysis of the residuals for this model. Copy & paste the appropriate tables/charts.