Time allowed: **THREE (3)** hours

Answer any **FIVE (05)** questions.

1 i Discuss the four main scales of measurement of data (i.e. nominal, ordinal, interval and ratio) that are used to categorize different types of variables.   (04 Marks)

ii What is the level of measurement for each of the following variables? Justify your answer.

    a The age in years of the youngest member of each household

    b Academic performance measured as "Pass" or "Fail"

    c People's attitude to smoking

    d Proximity to the sea (coastal or non-coastal)

    e Proximity to the sea (kilometers from the nearest coastline)

    f Relative wealth (listed as "Poor" through to "Wealthy")   (06 Marks)

2 The mean number of hours of sleep for adults in the population of Sri Lanka is 6.8 hours. A researcher believes that the mean number of hours that undergraduates get per night is significantly different from adults in the population. The mean number of hours sleep in a sample of 25 undergraduates is 7.1 hours. The standard deviation of this sample is 0.87.

i State both the null and alternative hypotheses.   (02 Marks)

ii Write a decision rule that states when the researcher should reject the null hypothesis.   (01 Mark)

iii Show all calculations needed to generate the appropriate statistic.   (05 Marks)

iv State the conclusion the researcher is entitled to draw.   (02 Marks)

3 i The average selling price of a new car is $19,800 and the standard deviation is $2300.

    a What proportion of new cars will sell for less than $16,000?   (03 Marks)

    b Within what limits will the middle 95 per cent fall? (Assume a normal distribution.)   (03 Marks)

ii Write short notes of the followings.

    a Descriptive Statistics

    b The Standard Normal Distribution   (04 Marks)