Answer *TWO* questions. Each question carrying equal marks

1. a) Distinguish between population and sample. Define parameter and statistic with example for each.

b) What do you mean by scale of measurement? Discuss different scales of measurement with suitable examples. Identify the types of variables and their scales of measurements on which the following variables are measured: (i) Religion (ii) Education level (iii) Monthly salary (iv) Temperature (v) Height (vi) Colour.

c) For any natural numbers, prove that, $AM \times HM = GM^2$.

2. The data below represent the number of employees of an organization who were sick per day on 30 working days:

7	5	14	11	10	12	8	9	14	13
10	10	11	11	14	9	11	7	13	12
12	16	18	13	13	17	11	14	14	12

a) Display the dataset with a stem-leaf display.

b) Construct a frequency distribution, pie chart and draw histogram.

c) Plot ogive curve and from that find out the number of sick days that 20 or more employees were sick. Compare the results obtained from Ogive with that from stem-leaf plot and comment.

Answer any *ONE* question. Each question carrying equal marks

3. What is dispersion? What are the measures of dispersion? For two observations, show that standard deviation is the half of the range. If GM of two observations is $3\sqrt{3}$ and variance is 9. Find the values of the two observations.

4. Define kurtosis of a frequency distribution. When do you call a distribution mesokurtic, platykurtic and leptokurtic? Show graphically the approximate positions of mean, median and mode when the distribution is (i) negatively skewed (ii) Positively skewed, and (iii) symmetric. Find mean, variance and coefficient of variation of the following series 5010, 5020, 5030, ..., 5100.