**Problem set – Introductory statistics**

**Measure of central tendency**

1. Suppose the data of the closing price (in Rs.) of a stock of a firm is given for 30 days: 220.1, 219.2, 219, 221, 217, 215.5, 214.12, 215.7, 211.4, 210.9, 211.8, 212.4, 210.6, 209.5, 209.7, 208.9, 209.1, 209, 208.5, 208, 207.7, 207.6, 207.5, 207.4, 208.2, 206, 203.5, 203.7, 202.9, 200

Calculate the mean, median, mode, geometric mean and harmonic mean for this data.

1. For the following frequency distribution of wages per day of 50 daily wage labourers, calculate mean, median, mode, geometric mean and harmonic mean for this data.

|  |  |
| --- | --- |
| Wages (Rs.) | Number of labourers |
| 120-150 | 3 |
| 150-180 | 6 |
| 180-210 | 20 |
| 210-240 | 10 |
| 240-270 | 8 |
| 270-300 | 3 |

1. A cyclist pedals from his house to his workplace at a speed of 10km/hr and back from the office to his house at 15 km/hr. Find the average speed. (Speed = Distance / Time)

**Classification and tabulation of data**

1. For the data in Q.1, construct a frequency distribution (no code required for the frequency distribution) and plot the histogram. (You may construct class intervals of size 5 each (first interval would be 200-205, 205-210 and so on).
2. Assuming the data are provided from 1 December 2020 – 31 December 2020, plot the data in an appropriate graph.

[In this problem, we can teach them plotting of various types of graphs if it has not been covered earlier]

1. Plot the histogram for the data in Q.2. Plot the ogive (cumulative frequency plot) for this data as well.

**Classical probability and rules of probability (no code needed for this problem as of now)**

1. Suppose there are 5 pairs of shoes on a rack in a closet, and 4 shoes are randomly selected. What is the probability that there is at least one complete pair among the 4 shoes chosen?