

[N.B. – The figures of the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer all the questions.]

1. A human resources department recorded the number of years employees have been with the company. The grouped frequency distribution below summarizes the data for a department.

Years of Service	0–2	3–5	6–8	9–11	12–14	15–17
Frequency	4	6	10	5	3	2

- (a) What is raw moment?

1
- (b) Derive the relationship between the first central moment and the origin.

2
- (c) Calculate the coefficient of skewness using the grouped data. What does the result indicate about employee tenure?

3
- (d) Compute the coefficient of kurtosis. What does it reveal about the distribution of tenure lengths?

4
2. The kurtosis and the variance of a symmetrical distribution are $\gamma_2 = -2.3672$ and $\sigma^2 = 4096$, respectively.
- (a) What is positive skewness?

1
- (b) What is the pattern in a left-skewed didstribution?

2
- (c) Find the fourth central moment.

3
- (d) Determine the value of the first and the third raw moments around 5.

4