Summary

- Interval estimation is a process of obtaining an interval in which the parameter value is expected to lie
- A confidence interval gives an estimated range of values which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data
- The width of the confidence interval gives us some idea about how uncertain we are about the unknown parameter
- The desirable properties of the interval may be described as validity, optimality and invariance
- Confidence limits are the lower and upper boundaries / values of a confidence interval, that is, the values which define the range of a confidence interval
- The confidence level is the probability value $(1-\alpha)$ associated with a confidence interval which is often expressed as a percentage
- When reporting a confidence interval, one has to make sure that you report both the interval and the confidence level. One without the other is meaningless
- A larger confidence level produces a larger Z, a larger margin of error, and a wider interval
- Each interval estimate is an interval constructed around the point estimate, along with a confidence level