

## Short Questions and Answers on Control Charts

1. **What is a control chart?**  
A control chart is a graphical tool used to monitor whether a process is stable and within control limits over time.
2. **Why are control charts used in quality control?**  
They help detect variations in a process and identify whether those variations are normal or due to specific causes.
3. **What is the purpose of the centre line in a control chart?**  
The centre line represents the average value of the process.
4. **What happens when a point falls outside the control limits?**  
It indicates the process is out of control and an assignable cause may be present.
5. **What is the difference between an  $\bar{X}$ -chart and an R-chart?**  
 $\bar{X}$ -chart monitors changes in the process mean, while R-chart monitors variability (range) within samples.
6. **Which type of data is used for a p-chart?**  
Proportion or percentage of defective items.
7. **Give one example of when a c-chart is used.**  
It is used when counting the number of defects in a single item (e.g., scratches on a table).
8. **What is the difference between p-chart & np-chart?**

p-Chart	np-Chart
Used to monitor the proportion (percentage) of defectives in a sample.	Used to monitor the number of defectives in a sample.
The sample size can vary	The sample size must be constant
The plotted value is $p = \text{number of defectives} / \text{sample size}$ .	The plotted value is simply $np = \text{number of defectives}$ .
Control limits change if the sample size changes.	Control limits remain the same because sample size is fixed.
Used when comparing defect rates over time.	Used when counting defectives directly is easier.

### What is Statistical Quality Control?

**Statistical Quality Control (SQC)** is a method of using statistical tools and techniques to monitor, control, and improve the quality of products or processes. It helps identify variations in a process, find their causes, and keep the process consistent to produce defect-free products.