# Sample Flash cards for Lean Six Sigma Black Belt Examination

### 1-Sample Sign Test

This is used to test the probability of a sample median being equal to hypothesized value.

### Affinity Diagram

A tool used to organize and present large amounts of data (ideas, issues, solutions, problems) into logical categories based on user perceived relationships and conceptual frame working.

### 2-Sample t-Test

2-Sample t-Test: Used for testing hypothesis about the location two sample means being equal.

#### **5S**

5S is the Japanese concept for house keeping.

- 1.) Sort (Seiri)
- 2.) Straighten (Seiton)
- 3.) Shine (Seiso)
- 4.) Standardize (Seiketsu)
- 5.) Sustain (Shitsuke)

### 5 Why's

The 5 why's typically refers to the practice of asking, five times, why the failure has occurred in order to get to the root cause/causes of the problem. There can be more than one cause to a problem as well. In an organizational context, generally root cause analysis is carried out by a team of persons related to the problem. No special technique is required.

## 7 QC Tools

- 1. Histograms
- 2. Cause and Effect Diagram
- 3. Check Sheets
- 4. Pareto Diagrams
- 5. Graphs
- 6. Control Charts
- 7. Scatter Diagrams

These are 7 QC tools also known as ISHIKAWAS 7QC tools which revolutionized the Japan & the World in Sixties & Seventies

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### 7 Wastes Of Lean

The 7 wastes consist of: 1. Defects 2. Overproduction 3. Transportation 4. Waiting 5. Inventory 6. Motion 7. Processing Use the acronym 'DOTWIMP' to

remember the 7 Wastes of Lean.

#### Alternative Hypothesis (Ha)

The alternate hypothesis (Ha) is a statement that the means, variance, etc. of the samples being tested are not equal. In software program which present a p value in lieu of F Test or T Test When the P value is less than or equal to your agreed upon decision point (typically 0.05) you accept the Ha as being true and reject the Null Ho. (Ho always assumes that they are equal)

### 8 D Process

The 8D Process is a problem solving method for product and process improvement. It is structured into 8 steps (the D's) and emphasizes team. This is often required in automotive industries. The 8 basic steps are: Define the problem and prepare for process improvement, establish a team, describe the problem, develop interim containment, define & verify permanent root cause, choose implement corrective action, corrective action, prevent recurrence, recognize and reward the contributors.

### Analysis Of Variance (ANOVA)

Analysis of variance is a statistical technique for analyzing data that tests for a difference between two or more means by comparing the variances \*within\* groups and variances \*between\* groups. See the tool 1-Way ANOVA.

### Attribute Data

Attribute data is purely binary in nature. Good or Bad, Yes or No. No analysis can be performed on attribute data.