1. A Lean Six Sigma black belt project results in a lower defective rate at the final inspection of a plastic molded component. Thirty days of data presented in the following table. (a) Create the appropriate control chart for the improved process. Apply only Western Electric runs rule 1 for determining non-random patterns. Assume any *p* estimate that violates Western Electric runs rule 1 has an assignable cause, omit it from the next control limit estimate, and repeat this process plotting a control chart until all *p* estimates are in control.

(b) Based on the characteristics of the Phase 1 control chart, discuss the design of a control chart for Phase 2 future production.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Day | Units  Inspected | Units  Defective | Day | Units  Inspected | Units  Defective |
| 1 | 200 | 7 | 16 | 100 | 0 |
| 2 | 150 | 1 | 17 | 200 | 6 |
| 3 | 250 | 7 | 18 | 200 | 3 |
| 4 | 150 | 1 | 19 | 200 | 8 |
| 5 | 200 | 4 | 20 | 200 | 5 |
| 6 | 200 | 4 | 21 | 200 | 5 |
| 7 | 250 | 8 | 22 | 100 | 1 |
| 8 | 150 | 1 | 23 | 250 | 8 |
| 9 | 250 | 7 | 24 | 200 | 3 |
| 10 | 150 | 3 | 25 | 100 | 1 |
| 11 | 100 | 0 | 26 | 200 | 4 |
| 12 | 250 | 6 | 27 | 250 | 8 |
| 13 | 200 | 4 | 28 | 250 | 5 |
| 14 | 100 | 0 | 29 | 150 | 10 |
| 15 | 250 | 7 | 30 | 250 | 5 |