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**Department of Industrial Engineering**

**IENG/MANE 484 Quality Control-Final Lab Exam**

**Time : 60 min Fall 2023-24**

**Note:** save your work and send the files to [**behzad.sanaei@emu.edu.tr**](mailto:behzad.sanaei@emu.edu.tr)

1. An architect wants to repair a great construction that has so many flats.

Every week, workers take a report of fixing flats and find the number of defects for each flat. Draw **C chart** in **Minitab** software.

|  |  |  |
| --- | --- | --- |
| Sample | Number Of Defects | Sample Size |
| 1 | 1 | 46 |
| 2 | 0 | 46 |
| 3 | 4 | 46 |
| 4 | 3 | 46 |
| 5 | 1 | 46 |
| 6 | 2 | 46 |
| 7 | 5 | 46 |
| 8 | 0 | 46 |
| 9 | 2 | 46 |
| 10 | 1 | 46 |
| 11 | 1 | 46 |
| 12 | 0 | 46 |
| 13 | 8 | 46 |
| 14 | 3 | 46 |
| 15 | 2 | 46 |
| 16 | 1 | 46 |
| 17 | 1 | 46 |
| 18 | 7 | 46 |
| 19 | 4 | 46 |
| 20 | 4 | 46 |

1. A quality engineer of the factory checks out the process for producing electronic components.

He tests samples of these components and wants to know whether the process is in control or not.

Draw **NP chart** in **Minitab** software

|  |  |  |
| --- | --- | --- |
| Sample | Number Of Examined Item | Number Of Defective Items |
| 1 | 185 | 4 |
| 2 | 110 | 7 |
| 3 | 90 | 5 |
| 4 | 175 | 8 |
| 5 | 130 | 6 |
| 6 | 120 | 6 |
| 7 | 170 | 4 |
| 8 | 125 | 5 |
| 9 | 105 | 8 |
| 10 | 95 | 7 |
| 11 | 110 | 2 |
| 12 | 140 | 6 |
| 13 | 123 | 5 |
| 14 | 132 | 9 |
| 15 | 124 | 8 |
| 16 | 140 | 5 |
| 17 | 112 | 1 |
| 18 | 90 | 5 |
| 19 | 99 | 8 |
| 20 | 100 | 7 |