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| MATH 1350 | **Statistics for Information Technology** |  |

**Lab # 7 – Sampling Distributions and the CLT**

Answer/Grading Sheet

| **Step:** | **Answer (if requested)** | **Mark** |  |
| --- | --- | --- | --- |
| 8 | * Frequency histogram of A00 number digits, with appropriate class width, axis labels and title. |  | /2 |
| 9 | * What are the mean and standard deviation of the A00 digit population? Paste them here: |  | /1 |
| 11 | * Size 8 samples histogram with all options and titles. |  | /2 |
| 12 | * Table of means and standard deviations for the distributions of each sample size:      |  |  |  | | --- | --- | --- | |  | Mean | Standard Deviation | | size2 | 4.5 | 2.491399 | | size4 | 4.045 | 1.687888 | | size8 | 3.95625 | 1.23045 | | size16 | 4.094375 | 0.9214534 | | size32 | 3.933438 | 0.6290534 | | size64 | 3.980313 | 0.4306749 | |  | /6 |
| 13 | * In a clear sentence, describe any trends you observe in the means of the sample mean distributions.   As the size increase, the sample mean becomes more accurate/closer to a mean of ~3.95. |  | /1 |
| 14 | * In a clear sentence, describe any trends you observe in the standard deviations of the sample mean distributions.   As the size increases, the standard deviation approaches 0. |  | /1 |
| 16 | * Histogram for the samples of size 16 |  | /2 |
|  | * Table of means and standard deviations for the distributions of each sample size:  |  |  |  | | --- | --- | --- | |  | Mean | Standard Deviation | | size2 | 177.185 | 9.548826 | | size4 | 175.1575 | 6.884936 | | size8 | 176.695 | 4.63631 | | size16 | 176.1856 | 2.954082 | | size32 | 176.2275 | 2.120186 | | size64 | 176.3673 | 1.608221 | |  | /6 |
|  | * In a clear sentence, describe any trends you observe in the means of the sample mean distributions.   As the size increase, the sample mean becomes more accurate/closer to a mean of ~176.4. |  | /1 |
|  | * In a clear sentence, describe any trends you observe in the standard deviations of the sample mean distributions.   As the size increases, the standard deviation approaches 0. |  | /1 |
| R script /5  Paste your R script here. Make sure that it contains ALL of the elements worth points listed above. | | | |
|  | Paper and Pencil problem #1 (this is just a space for your marks) |  | /3 |
|  | Paper and Pencil problem #2 |  | /2 |
|  | Paper and Pencil problem #3 |  | /2 |

Total /35