Confidence intervals

Consider two scenarios focusing on a server that executes jobs individually, in order of arrival and without interruption. In each case, jobs arrive and are served according to the following inter-arrival time and service time distribution:

Scenario	Arrival	Service
I	*Two stages* **hyper-exponential** distribution with: $\lambda_1 = 0.025, \lambda_2 = 0.1, p_1 = 0.35$	**Weibull** with: $k = 0.333, \lambda = 2.5$
II	**Erlang** with: $k = 8, \lambda = 1.25$	**Uniform** with: $a = 1, b = 10$

For each scenario, using batches of M = 5000 jobs, compute the 95% confidence interval, with a 2% relative error, of the following performance indices:

- Utilization
- Throughput
- Average number of jobs in the system
- Average response time

For each scenario, report the number of batches K required to reach the required accuracy.