Problem - 2 (Spring 2026)

Due date: 10 February, 2026

1. a) Starting from uniform random variates, $U(0,1)$, generate a Gaussian distribution (with a zero mean and a variance unity) using the Box-Muller transformation, as discussed in the class.

   b) Use the Central Limit theorem to obtain a Gaussian distribution from uniform random variates. Compare you results with those in (a).

   c) Give a mathematical justification of the results in (b) above.

   Note: You may use an external random number generator for generating uniform random variates.