Note: Bonus questions are entirely optional. They can get very challenging and/or fall outside the course curriculum. Interested individuals may attempt.

1. (AY 19/20 Sem 2 Midterm) Rank the following functions in increasing order of growth. Assume: All logarithms are in base 2.
   - $g_1(n) = \sum_{i=1}^{\log n - 1} \log\log \frac{n}{2^i}$
   - $g_2(n) = \sum_{i=1}^{n-2} \log\log(n-i)$
   - $g_3(n) = (\log n)!$
   - $g_4(n) = 2^{\log\log\log n}$
   - $g_5(n) = 10^{\log((\log\log n)!)/\log\log n}$
   - $g_6(n) = \log((\log n)!)$
   - $g_7(n) = n^3$
   - $g_8(n) = 2^n$