(1) Find a continuous nonnegative function $f(x)$ such that for any $n \times n$ matrices A, B with $||A|| \leq C$, $||B|| \leq C$ we have
$$||e^A - e^B|| \leq f(C)||A - B||$$
Can such $f(x)$ be bounded on R? Can such $f(x)$ satisfy $f(0) = 0$?