

CSC 400 Estimation Questions

September 5, 2007

Document your sources and describe your reasoning and assumptions in answering the following questions. For uncertain quantities, it is wise to consult more than one source. Do your own calculation rather than looking up the answers (which might very well be wrong).

1. How far does a typical red corpuscle travel relative to its local environment (the blood vessel or capillary it is in) during its lifetime?
2. How many meters of yarn (thread) is contained in a typical high-quality woolen suit? What is the total length of the individual wool fibers in such a suit?
3. How many photons are emitted by the sun in a year? How are these distributed over the xray, ultraviolet, visible, infrared, microwave, and radio bands? Note that this precludes an estimate based on the assumption that all the photons represent (e.g.) 480 nm radiation.
4. How many snowflakes fall in Monroe county in a typical year?
5. How much would it cost to repave all the roads in the city of Rochester?
6. How many pigment particles are there in a gallon of modern white house paint? What area could be covered by these particles if they were spread out in a single layer? How many layer of particle are ther in a typical application at the recommended rate?