1. (J & C 1-1) A car accelerates at a rate of 5.0 km per hour per sec. Express this acceleration in m s\(^{-2}\).

2. (J & C 1-2) A current of 1.0 µA flows into a condenser of capacity 100 nF for 5.0 s. Calculate the potential difference between the plates of the condenser.

3. (J & C 1-3) A patient is given an x-ray exposure of 200 R. Calculate this exposure in C kg\(^{-1}\).

4. (J & C 1-4) After a full course of treatment, a tumor received a dose of 4000 rad. Express this dose in Gray, in MeV per g.

5. (J & C 1-5) A source of \(^{60}\)Co has an activity of 1100 Ci. Express this activity in Bq.

6. A graduate student raises four lead bricks in a bucket (100 pounds) to a third floor window (25 feet) in 15 seconds. Calculate:
   a. The work done in Joules
   b. The power developed in Watts
   c. The power developed in horsepower