1. Explain in one sentence each the meaning of capacitor and inductor

A capacitor is a device used to store electric energy in an electric field, usually comprised of two plates separated by a dielectric compound. An inductor is a device that stores energy in a magnetic field when a current flows through it, usually comprised of a coil of wire.

2. Find the resonant angular frequency ω and the period T for an RLC circuit with R = 100 Ω, C = 0.1 F, and L = 0.5 H. (That's a pretty large capacitance by the way).

$$\omega_0 = \frac{1}{\sqrt{LC}}$$

$$\omega_0 = 4.47 \frac{rad}{s}$$

$$T = 1.40\text{s}$$

3. How would your answer for the angular frequency ω in Q2 change if you doubled the resistance R? Would anything else change

Doubling the resistance would not change angular frequency. It will halve the Q factor, and reduce the maximum current.

4. Suppose you connected a DMM set to ammeter mode in the circuit with the parameters in Q2. Describe what you would observe.

You would observe the current oscillating at the resonant frequency 4.47 rad/s, amplitude Imax, and period 1.40s. The DDM should pick up this oscillation, otherwise it will display the average current.