Basic Circuit:

6.

A) No, it is not sufficient, it needs 5 amps

B) It would short-circuit

7.

A) It is what we expected with a 330 ohm resistor. The current was 0.015 amps.

LED in circuit:

1.

a) The longer side is positive, the shorter side is negative. The longer wire goes to voltage, and the shorter end goes to ground.
b) The drop is 2.7 volts
c) The drop should be 2.3 volts

2.

a) The LED will get brighter

3.

a) The stronger the resistor, the less bright

4.

a) The brightness is less

5.

b) It'll get brighter with 10 volts and 47k ohm resistor

6. The way to measure Led brightness is through the current that passes through it.

7. These results change with different color LEDs because each LED has different voltage requirements.

Photo-diode:

2. The voltage across the resistor is 0.04 volts with 330 resistor

3. The voltage goes to 0, for 3.3 volts the voltage is still 0.04

a) Its 121 microamps
b) Yes for both
c) It increases the voltage

4. Dark current is 121 microamps , saturation current is 13.03 milliamps