**Note: All answer must be in engineering notation rounded off to the hundredth**

**1.** **What is the power delivered by a 9 V battery if the current drain is 40 mA? (11 points)**

So the power is 360mW

**2**. **What is the output power of a motor with an efficiency of 92% and an input current of 5 A at 110V? (12 points)**

So input power is 550W, based on the output power of a motor with an efficiency of 92%

So the output power is 506W

**3. If an efficiency of a motor is 80%, determine the applied input energy if the output energy is 60 J (10 points)**

So the input energy is 75J

**4. What is the total cost of using the following at 12¢/kWh? (20 points)**

1. **1600 W air conditioner for 8 h**
2. **1200 W hair dryer for 20 min**
3. **4800 W clothes dryer for 1 h**
4. **900 W coffee maker for 15 min**
5. **200 W Play Station 3 for 1.2 h**
6. **50 W stereo for 3.5 h**

**5. Use Kirchhoff’s Voltage Law (KVL) to find the unknown voltage (A, B = 8 points, C = 11 points)**



Base on the KVL, in this closed loop

 Base on the KVL, in this closed loop



Base on the KVL, in the closed loop

**6. Use Kirchhoff’s Current Law (KCL) to find the unknown current (A = 8 points, C = 12 points)**

Base on the KCL,

Base on the KCL,