Sensors Assignment#1

Q1: In the voltage divider circuit , and is a sensor whose resistance varies from 2.2 to 8.4 kΩ as some dynamic variable varies over a range

Find

1. The maximum
2. The maximum power dissipated by the sensor ()
3. The range of output impedance

Q2: for wheatstone bridge with resistances and a 10 V supply . if a digit DVM on a 2000 mV scale is used for null detector . find the resistance resolution for the measurement of

Q3:

design a twin-T notch filter to reduce and eliminate the 240 Hz signal also find the low edge frequency and the high edge frequency for this filter for which the output is down by 3 dB

Q4: A signal conditioning system uses a frequency variation from 6 kHz to 60 kHz to carry measurement information and there is a noise at 120 Hz and at 1 MHz . design a band pass filter to reduce the noise by 80% ( take r =0.01 and )