1) Design an amplifier with an input impedance of at least 100KΩ and a gain of 1000. The input is slow moving so to eliminate excess noise the gain should roll off at higher frequencies (say above 100Hz). Use a single LM741 op-amp with +/-15V supplies.

2) Design an amplifier with a gain of 10,000 at 1KHz. The gain should roll off above and below this frequency (say below 100Hz and above 10KHz). The input impedance can be as low as 1KΩ. Because the LM741 bandwidth is about 1MHz use two LM741 op-amps with +/-15V supplies.