Question 2:

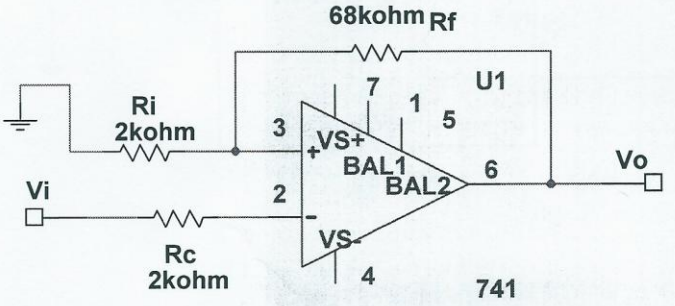
a) Define the following parameters of an operational amplifier.

i. Input offset voltage
ii. Input bias current
iii. Input offset current

and draw the equivalent circuit for determining their effects.

b) For the circuit of figure-2

figure-2



Assume that the op-amp bias and offset parameters are as follows:

Input offset voltage = 1.2 mV
Input bias current = 60nA
Input offset current = 80nA

i) Determine the magnitude of the output dc voltage | V01 | produced, by the input offset voltage.

ii) With Rc = 0 , determine the magnitude of the output dc voltage |V02 | produced by the input bias currents.

iii) Determine the optimum value of Rc.

iv) With Rc set at the value determined in part iii), find out the new value of | V02 |.

v) Compare the total output offset voltage with and without Rc and explain the advantage of using the compensating resistance.