Student 1 – name _____ Student 2 – name _____ Group _____ Date/Time _____ Table nbr. _____

Worksheet 4 - Lab 4

1. a)R= C= $f_{-3dB\ calc}$= b)f_{-3dB}=

c)

$U_i\|_{dB}$	-5dB	0dB	5dB
$U_0\|_{dB}$			

Explanation:

2. a)

LPF	$f_{-3dB}/10$	$f_{-3dB}/4$	$f_{-3dB}/2$	f_{-3dB}	$2f_{-3dB}$	$4f_{-3dB}$	$10f_{-3dB}$
Frequency [kHz]							
$U_i\|_{dB}$							
$U_0\|_{dB}$							
$\|H(\omega)\|_{dB}$							

b) in the *stopband*, roll-off [dB/decade]= roll-off [dB/octave]=
Explanation:

3. a)f_{-3dB}=

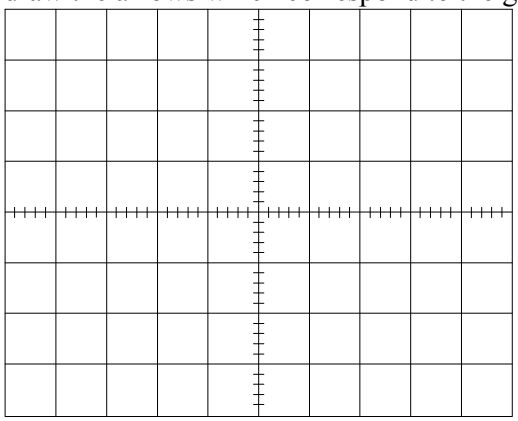
4. a)

HPF	$f_{-3dB}/10$	$f_{-3dB}/4$	$f_{-3dB}/2$	f_{-3dB}	$2f_{-3dB}$	$4f_{-3dB}$	$10f_{-3dB}$
Frequency [kHz]							
$U_i\|_{dB}$							
$U_0\|_{dB}$							
$\|H(\omega)\|_{dB}$							

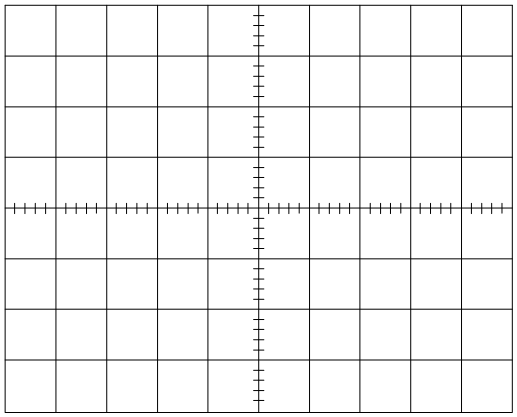
b) in the *stopband*, roll-off [dB/decade]= roll-off [dB/octave]=
Explanation:

5. . $\tau = R\,C$ = T_1 = T_2 = T_3 = f_1 = f_2 = f_3 =

OBS: draw the arrows which correspond to the ground level



Response of integrator circuit (3 cases)



Response of differentiator circuit (3 cases)

5. Explanations:

2c, 4c: Amplitude-frequency plots for the LPF and HPF
In order to represent a log-frequency scale you could take into account that: lg2≈0,3; lg3≈0,48; lg4≈0,6; lg5≈0,7; lg6≈0,78; lg7≈0,84; lg8≈0,9; lg9≈0,95.