Student 1 – Name **Student 2 – Name** **Group** **Date/hour**

First Laboratory – periodic signals

A) $U_{r,ef,real} =$

B) Rectangular signal $f_0 = 200\text{kHz}$ $\frac{\tau}{T} = 0{,}5$ $f_k = k \cdot f_0$

k	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
f_k [MHz]																				
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$																				
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$ [dB]																				
$\left.\frac{A_k}{A_1}\right\|_{exper.}$ [dB]																				
$\left.\frac{A_k}{A_1}\right\|_{exper.}$																				

C) Rectangular signal $f_0 = 200\text{kHz}$ $\frac{\tau}{T} = 0{,}25$ $f_k = k \cdot f_0$

k	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
f_k [MHz]																				
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$																				
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$ [dB]																				
$\left.\frac{A_k}{A_1}\right\|_{exper.}$ [dB]																				
$\left.\frac{A_k}{A_1}\right\|_{exper.}$																				

D) Measurement of rise time for periodic rectangular signals

$t_{c1} =$ for $\frac{\tau}{T} = 0{,}5$

$t_{c2} =$ for $\frac{\tau}{T} = 0{,}25$

E) The bandwidth of the rectangular signal B= for $\frac{\tau}{T} = 0{,}5$

B= for $\frac{\tau}{T} = 0{,}25$

F) Triangular signal $f_0 = 200\text{kHz}$

k	1	2	3	4	5	6	7	8	9	10	11	12
f_k [MHz]												
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$												
$\left.\frac{A_k}{A_1}\right\|_{theoretical}$ [dB]												
$\left.\frac{A_k}{A_1}\right\|_{exper.}$ [dB]												
$\left.\frac{A_k}{A_1}\right\|_{exper.}$												

B=

G) Harmonic signal $f_0 = 200\text{kHz}$

$n_1 = 0$ [dBm]

δ =

k	1	2	3	4	5	6	7	8	9	10
f_k [MHz]										
n_k [dB]										

$n_1 = 15$ [dBm]

δ =

k	1	2	3	4	5	6	7	8	9	10
f_k [MHz]										
n_k [dB]										

H) Triangular signal $f_0 = 10\text{kHz}$ (osciloscope)

k	1	2	3	4	5	6	7	8	9	10	11	12
f_k [kHz]												
$\left.\frac{A_k}{A_1}\right\|_{teoretic}$												
$\left.\frac{A_k}{A_1}\right\|_{teoretic}$ [dB]												
$\left.\frac{A_k}{A_1}\right\|_{exper.}$ [dB]												
$\left.\frac{A_k}{A_1}\right\|_{exper.}$												

I) The spectra of theoretical and experimental amplitudes for the rectangular and triangular signals on millimetre paper

J) The power of the rectangular signal

for $\frac{\tau}{T} = 0{,}5$ $E_{01} =$ $E_{02} =$ $P_t =$ $P_e =$ $P_1 =$ $\frac{P_e}{P_t} =$ $\frac{P_1}{P_t} =$

for $\frac{\tau}{T} = 0{,}25$ $E_{01} =$ $E_{02} =$ $P_t =$ $P_e =$ $P_1 =$ $\frac{P_e}{P_t} =$ $\frac{P_1}{P_t} =$

K) The power of the triangular signal

$E =$ $P_t =$ $P_e =$ $P_1 =$ $\frac{P_e}{P_t} =$ $\frac{P_1}{P_t} =$