LABORATORY OF ELECTRONIC CIRCUITS

Laboratory exercise no.: **5**	Consecutive protocol number:	Name and surname: 1. 2. 3.

Title: Audio Amplifier

Day of week:	Date of the measurements:	Date of elaboration:
	Grade:	

2.1. Measurement of the output power, efficiency and total harmonic distortion ratio at several loads R_0 and input voltages, f=1kHz**:**

V_{we}	R_0=4Ω					R_0=6Ω					R_0=10Ω				
	I_{zas}	P_{wy}	h	P_{zas}	P_{str}	I_{zas}	P_{wy}	h	P_{zas}	P_{str}	I_{zas}	P_{wy}	h	P_{zas}	P_{str}
[mV]$_{RMS}$	[mA]	[W]	[%]	[W]	[W]	[mA]	[W]	[%]	[W]	[W]	[mA]	[W]	[%]	[W]	[W]
5															
10															
15															
20															
25															
30															
35															
40															
45															
50															
55															
60															

1) Calculate the power supply: $P_{zas} = I_{zas} \cdot U_{zas}$, where U_{zas}=15V and the power loss: $P_{str}=P_{zas}-P_{wy}$. For <u>each</u> R_0=4, 6, 10Ω separately, plot on a single graph: $P_{zas}(V_{we})$, $P_{wy}(V_{we})$, $P_{str}(V_{we})$ (three graphs). Determine the value of V_{we}, for which the maximum power loss is observed.

2) Plot on a single graph <u>for all</u> R_0=4, 6, 10Ω , the dependency: $h(V_{we})$.

2.1. Measurement of the frequency characteristics of the amplifier, V_{we}=10mV$_{RMS}$:

R_0=4Ω		R_0=6Ω		R_0=10Ω	
f [kHz]	P_{wy} [W]	f [kHz]	P_{wy} [W]	f [kHz]	P_{wy} [W]

1) Plot the frequency characteristics of the amplifier for all R_0=4, 6, 10Ω on a single graph. Use log coordinates for X axis and linear coordinates for Y axis.

2) On the basis of the measurements, determine the optimum load resistance R_0 due to:
a) the output power and the efficiency;
b) the distortions.

For each measurement results, include your conclusions and observations. Compare the circuits with each other write your own comments to the results.