Alternating Current

Please do the following assignment practically or simulate it.

Assignment

Please use the test setup described below and determine the AC characteristics (V_{rms}, V_{peak}, T, f, etc.) of the signal measured at test point A. Determine the phase shift between the signals at test point A and B, too. Please use the specification board of the transformer if you do a simulation.

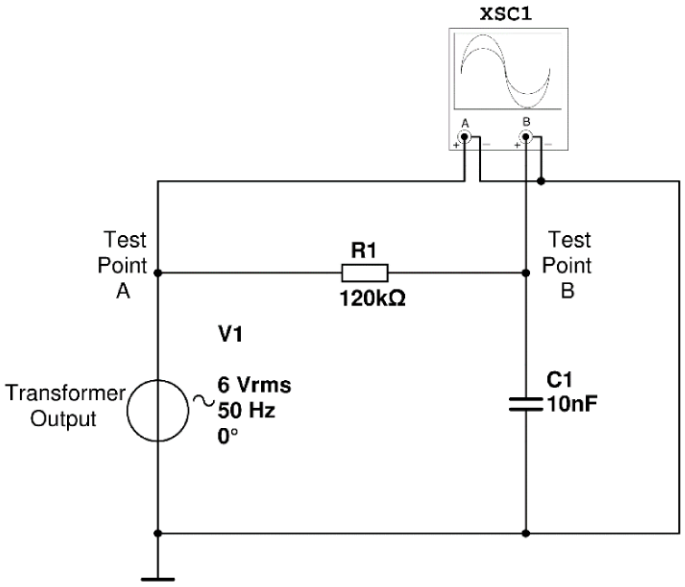
Components

To do this assignment you need:

- 1 Oscilloscope
- 1 Transformer
- 1 Test circuit
- 2 Probes
- 1 Cable with bayonet joint

Circuit

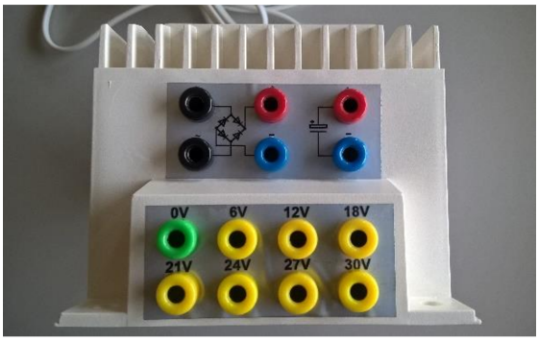
The following circuit is used for the measurement.



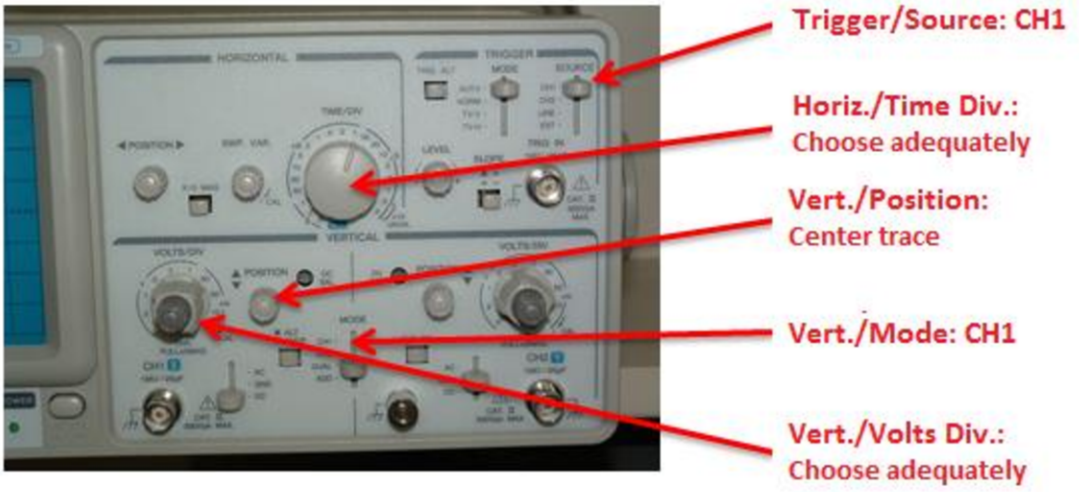
Measurement

You have to do the following steps in order to prepare the measurement:

- Please connect the circuit with the transformer so that it is operating with 6 V.
- Please ground both probe heads via the oscilloscope.
- Please connect the probe head of CH1 with test point A.
- Please connect the probe head of CH2 with test point B.



Please adjust the signals with the aid of the controls of the oscilloscope – see following picture. Both signals should be well visible and equally scaled.

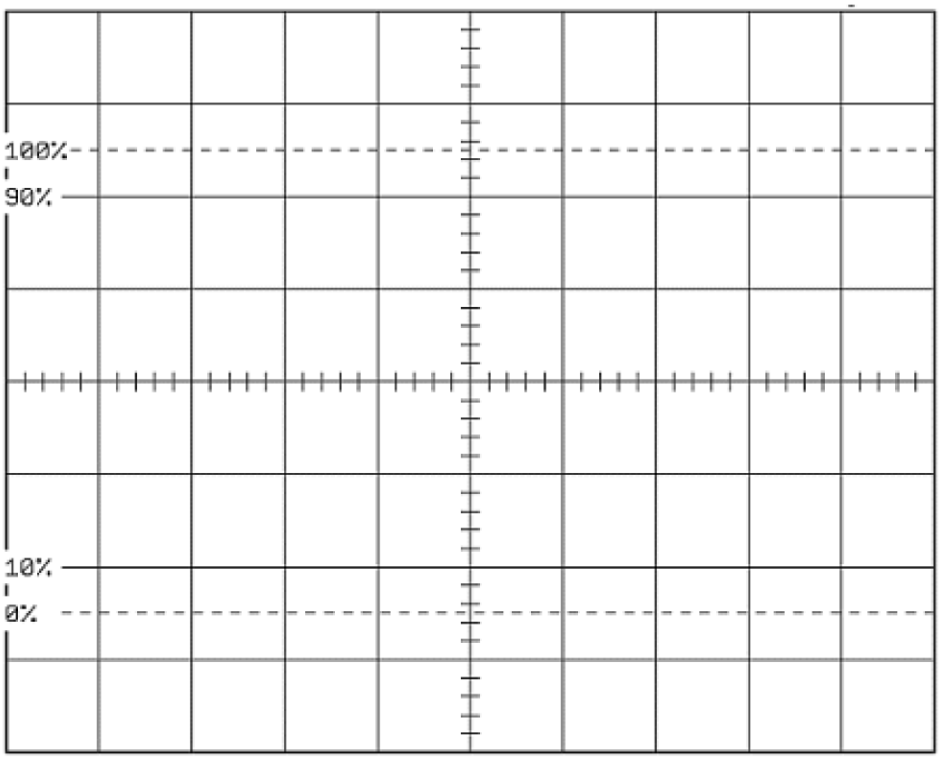


Please make a sketch of the two signals, the determine the AC characteristics and the phase shift. Please consult [SEY14] chapter 6.6 *Wechselstrom und Wechselspannung* and chapter 6.9 *Phasenverschiebung* if you need a refresh of your knowledge.

Results

Please note your results here:

Please sketch the two signals and use different colors for the two traces.



Bibliography

[SEY14]: SEYR, SIGURD and SCHWAIGER, HERBERT, 2014, Elektrotechnik Grundlagen mit angewandter Mathematik. Wien : Jugend & Volk. ISBN 978-3-7100-2873-1.

