Electronics – electronic measurement systems

Theoretical questions

1. Describe Ohm's law
2. Describe the Kirchoff equations through an example
3. How do we measure the current of a circuit element and why?
4. How do we measure the voltage of a circuit element and why?
5. Draw the vectorial representation of an RL series circuit.
6. Draw the vectorial representation of an RC series circuit.
7. Describe the voltage-current conditions on a capacitor.
8. Describe the voltage-current conditions on an inductor.
9. What is a 3-phase circuit?
10. Describe line-to-line and line-to-phase voltages in a 3-phase circuit.
11. When is a 3-phase circuit symmetric?
12. Draw a 3-phase grounded circuit in Y configuration, with vector diagram.
13. How large is the voltage between a 3-phase Y configurations common point and the ground point.
14. How large is the current flowing back at a 3-pase grounded Y circuits common to ground line? What happens when we disconnect one of the phases? With vector diagram.
15. Draw a 3-phase circuit in a symmetric delta configuration, with vector diagram.
16. How does a 3-phase circuit in a symmetric delta configuration change when one phase gests disconnected? With vector diagram.
17. Give the impedance parameters of a 4 pole circuit.
18. Give the hybrid parameters of a 4 pole circuit.
19. Describe the structure of a semiconductor diode.
20. What does forward and backwards biased diodes mean?
21. Draw the characteristic diagram of a semiconductor diode?

22. What is the difference between a diode and a Zener diode?
23. How does a Zener diode stabilize the voltage?
24. Describe the structure of a Bipolar Junction Transistor.
25. Draw the output characteristic of a transistor.
26. Draw a common emitter transistor circuit.