



Warsaw University of Technology, Faculty of Electrical Engineering

Rules for the engineering diploma examination (for Electrical Engineering) – oral part

(version date 20.08.2021, valid from 1st of October 2021)

1. During the diploma examination, three questions are asked by members of the examination board.
 2. The reviewer asks a question about the thesis (theoretical part only).
 3. At least one question asked by the members of the examination board should be selected from the "Examples of examination questions" list (see below).
 4. If the question asked (from the list or not) concerns a course in which the graduate did not participate, he / she has the right to report this fact and ask for the question to be changed.
 5. The oral exam is considered failed if the grade for at least two questions is insufficient (2.0).
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Examples of examination questions - engineering diploma examination

1. What are the basic elements of power system?
2. What are typical voltage levels for transmission and distribution networks ?
3. Which voltage level network has the largest total length. Justify the answer.
4. What are the types of hydro power stations?
5. Basic advantages and disadvantages of wind power plants.
6. Difference between voltage loss and voltage drop.
7. Describe types of conductors.
8. Describe electrical power substation and its functions.
9. Why do we use the three phase alternating current system?
10. Elements of power system protection.
11. Types of transformers protections.
12. Please, describe the main features of TT electric network system.
13. Please, list the factors influencing the value of skin impedance.
14. List the factors influencing the value of skin impedance.
15. List basic protection measures in high voltage installations and lines.
16. What is power factor ? What formula will describe it ?
17. How could we improve the power factor?
18. Types of generator protections.
19. Types of thermal power plants
20. What are the most important parameters of electric power system operation?
21. Describe basic parameters of electrical energy quality?
22. Describe types of electric power lines.
23. What are the differences between a traditional electrical installation and a KNX installation ?
24. Which conditions must be met for electrical shock protection?
25. What are the advantages and disadvantages of a coal power plants ?
26. Explain the concept of short circuit power.
27. Please, describe the main features of IT electric network system.
28. What parameters of wire can influence the value of the voltage drop ?

29. Methods of Voltage Control in Power System.
30. Describe the role of reactive power in power system.
31. Describe principles of cable selection in LV installations.
32. What are the necessary conditions for parallel operation of transformers?
33. Describe conditions for Automatic Disconnection of Supply for TN system.
34. Which conditions must be met for electrical shock protection?
35. What are the power quality parameters? Please name three of them.
36. Why do you conduct short-circuit test of the transformer?
37. How can you control voltage in transmission power system?
38. What are the negative effects of reactive power in electrical power system?
39. What are the advantages and disadvantages of renewable energy sources?
40. What conditions must be met to synchronize the generator with the grid?
41. What are the limitations in the power generated by the synchronous generator?
42. What is the purpose of calculating load flows?
43. What are the simplifications used when calculating short-circuit currents in transmission networks?
44. What is a transformer ratio?
45. What are the effects of short-circuit current flow?