

DIPLOMA EXAM QUESTIONS BACHELOR'S DEGREE

field of study: CONSTRUCTION AND BUILDING SYSTEMS ENGINEERING (CBSE)

1. Equilibrium of coplanar force system.
2. Characterize thermal insulation materials used in construction (types, assortment, basic technical characteristics and application).
3. Bending stress and shear stress in beams. Give example.
4. Classification of actions according to Eurocode 0. Give examples of the actions.
5. Give (draw) examples of solutions for external walls in heated buildings.
6. What are the concrete components and technological processes in concrete production?
7. What are the concrete components? What are the functions of individual concrete components?
8. Characteristic of road cross-section elements.
9. List and discuss methods of solving statically indeterminate structures.
10. Present selected properties of statically indeterminate structures.
11. Principles of heat and mass transfer in building materials, methods of thermal and humidity evaluation of building partitions and requirements.
12. Bending resistance of the singly reinforced cross-sections. Calculation of the required area of bending reinforcement.
13. Deflection control of the RC-members. Cases, where direct deflection calculations may be omitted.
14. What are the mechanisms of heat transfer? How are they distinguished from each other?
15. Basic earthworks and machines to perform them.
16. Methods of assembly of building structures, machines used in assembly works.
17. Why should filters be used in water and gas installations?
18. What factors affect the efficiency of the solar collector?
19. What are the consequences of the air presence in the Heating System installation?
20. How does Thermostatic Regulation Valve (TRV) work? Describe briefly.
21. Design bolted and welded connections of steel members.
22. Design of compression and bending resistance of steel columns and beams.
23. Mention water treatment processes and shortly describe their significance.
24. The goal of wastewater treatment and possible ways of purification.
25. Physical and mechanical parameters of soils and the differences between them for non-cohesive and cohesive soils.
26. Characteristics of the lateral earth pressure (active, passive and earth pressure at rest).
27. Requirements regarding inclination, diameter, velocity and ventilation of gravity sewers.
28. Types of foundations and their application in engineering practice.
29. Principles of hydraulic calculations of looped and branched water supply pipes.
30. Please list the types of ventilation.
31. What is stack ventilation?
32. Methods of assessing the economic efficiency of investments.
33. Please list the steps of integrated waste management and describe their significance.