

## Questions 2016

1. What data are necessary to define a force vector in the plane? Sketch an example, and give also the related units!
2. Give three important dimensions (height, width or length in m) of the K building of BME, that can be related to any functional unit, part or whole of the building or to a building construction!
3. What kind of safety requirements are to be considered when designing buildings?
4. Describe the way of rupture of the brickwork specimen tested in the laboratory for compression!
5. Give examples for variable and permanent loads (at least two-two)!
6. Give a list of functionality requirements of spaces in buildings (requirements of human comfort and use)!
7. We tested in the laboratory  
    reinforcing steel bar in tension,  
    brickwork in compression and  
    timber in compression parallel to grains  
    Give the approximate value of the ultimate strength (the strength measured at rupture) of these tested materials in  $\text{KN/cm}^2$  (or  $\text{N/mm}^2$ )
8. What is stress? Give also the unit of it!
9. What is strain? Give also the unit of it!
10. What is strength? Give also the unit of it!
11. What is a stress-strain diagram! Sketch an example!
12. Sketch a linear elastic-completely plastic stress-strain diagram, and indicate on it: the linear-elastic part, the yield point, the completely plastic part and the point corresponding to rupture!
13. Give structural requirements of loadbearing structural materials!
14. What different values of the strength are determined by statistical evaluation of the test results? Which is the most safe value?
15. What are main components of the static model?
16. What is an external joint of a structure? (Why is it called external joint?)
17. Why do we need the static model of loadbearing structures? For what purpose do we use it?
18. How do we simplify structural members, when constructing the static model of the structure?
19. What kind of joints do you know?
20. Sketch the static model of a simple supported arch!
21. What is the name of the given static model?
22. What are the main steps (phases) of the design of loadbearing structures?
23. What are the fundamental laws of structural analysis?
24. What are responses of loadbearing structures when being loaded?
25. What is normal stress? Give also the unit of it!
26. What is shear stress? Give also its unit!
27. What is normal force? Give also its unit!

28. What is shear force? Give also its unit!
29. What is distortion? Give also its unit!
30. Is cracking a response of structures when loaded? What kind of stress may produce cracking?
31. Sketch the static model of a cantilever loaded by uniformly distributed load!
32. Sketch the static model of a simple supported beam loaded by concentrated force at mid-span!
33. What is span? Give also the unit of it!
34. What is an internal force! What different internal forces do you know?
35. What are different means of protection of the natural and built environment
36. What is treated by the general development project (GDP)?
37. Who are participating in the creation of the general development project (GDP)?
38. Who is the client in the process of building investments?
39. What is the role of the general management company in the process of building investments?
40. What kind of different projects are to be made for the erection of buildings?
41. Different members participating in preparation of the building permission project!
42. What different authorities are intervening in authorization of the building permission project?
43. What is the aim of the tender project?
44. Who is the building manager (or project manager)?
45. What is responsible the general contractor company for, during the realization of the building?
46. Give the name of some subcontractors which may be contracted by the general contractor company for different execution activities!
47. Why is demolition project also necessary (what aspects should be taken into consideration by making it)?
48. What is the relation between temperature and rigid behaviour of structural materials?
49. What was the reason of the collapse of the Tacoma Narrows Bridge in the USA in 1940?
50. What is resonance between load revival period and self-frequency of the structure and what can it result?