Questions to prepare for the exam of

" Selected chapters of theoretical physics of atomic nucleus and elementary particles "

1. Introduction. A Brief History of the Development of Nuclear Physics
2. Composition and properties of atomic nuclei
3. Static characteristics of nuclei.
4. Nuclear bond energy
5. Nucleon-nucleon interaction and properties of nuclear forces
6. Models of atomic nuclei.
7. Model of a liquid droplet Shell and generalized models
8. General regularities of radioactive decay.
9. Natural and artificial radioactivity. Types of decay
10. Nuclear reactions. Classification.
11. Conservation laws.
12. Energy of reactions and decays
13. Nuclear fission. Thermonuclear reactions.
14. Use of nuclear energy
15. Experiments in high-energy physics.
16. Methods of research in nuclear physics and particles.
17. Observation, registration and production of elementary particles.
18. Accelerators
19. Classification of elementary particles.
20. Fundamental interactions.
21. Trends in the development of high-energy physics
22. Phase Transition and Quark Gluon Plasma
23. Supernova and Synthesis of Heavy Nuclei.
24. Nuclear Physics: Present and Future
25. The main Equations in Nuclear Physics
26. Macroscopic quantum phenomena
27. Elementary particles and classification
28. Nuclear reactions. Classification.
29. Trends in the development of high-energy physics
30. Fundamental interactions.