

**Questions to prepare for the exam of
" Nuclear interactions in high density star matter "**

Part № 1

1. Stars and interstellar medium.
2. The birth of stars.
3. Galaxies and quasars.
4. The use of physical laws to the study of space objects (stars, cosmic plasma).
5. Interaction of radiation with matter.
6. Elementary bases of the interaction of matter and radiation.
7. Radiative transfer equation and it's simple solutions.
8. Physical processes in celestial sources of radiation.
9. Nuclear reactions in stars and other astronomical objects.
10. Nuclear reactions in astronomical objects.
11. The theory of interactions.
12. The theory of weak interactions.
13. The theory of strong interactions.
14. The theory of electromagnetic interactions.

Part № 2

16. The theory of gravity interactions.
17. The interactions and reactions of two-particle types.
18. Energy and mechanisms of nuclear fission.
19. The explosions of supernovae, quasars, pulsars, neutron stars.
20. Modern theoretical ideas about the nature of stars and their systems.
21. Modern problems of astrophysics.
22. Physical methods of research of space objects.
23. The use of the achievements of nuclear physics to the study of cosmic phenomena.
24. The latest discoveries and developments in the study of the universe in recent years.
25. Nuclear reactions in astrophysical objects.
26. Databases on nuclear reactions.
27. Astrophysical observations.
28. Compact objects.
29. Nuclear interactions in compact objects.
30. Physical observables in High Density astrophysical objects.

Part № 3

31. Big Bang Theory
32. Evolution of Stars

33. Fundamental Interactions in Nuclear Physics.
34. Physics of Elementary particles
35. Hadron physics.
36. Give the examples of Nuclear interaction.
37. Interstellar and stars medium.
38. The use of physical laws to the study of the universe as a whole.
39. The interactions and reactions of three-particle types.
40. The explosions of quasars.
41. The explosions of pulsars.
42. The explosions of neutron stars.
43. Astrophysical observations.
44. The latest discoveries and developments in the study of the universe in recent years.
45. Physical methods of research of space objects.