Exam questions

1. The structure of the atmosphere and its chemical composition.

2. The biological role of air. Oxygen and ozone in the atmosphere.

3. The role of nitrogen in the atmosphere. The role of carbon dioxide and water vapor in the atmosphere.

4. The process of photosynthesis. Light and dark stages of the process of photosynthesis.

5. Features of chemical processes in the atmosphere

6. Changes in the chemical composition of the atmosphere and the Earth's climate

7. Greenhouse gases (CO_2; CH_4; N_2O).

8. Carbon cycle and its effect on the greenhouse effect.

9. The role of freons and gallons in the atmosphere.

10. Ozone and its role in the stratosphere. Chapman cycle.

11. The ozone hole problem. Atmospheric heat balance.

12. The nature of the greenhouse effect. The concept of transparent windows

13. Ozone in the atmosphere. Space-time distribution of ozone in the stratosphere

14. Tropospheric ozone and its origin, mechanism of formation

15. Troposphere as ozone-photooxidant. Effects of ozone on living organisms and materials

16. Catalytic cycles of stratospheric ozone decomposition. Hydrogen cycles

17. Catalytic cycles of stratospheric ozone decomposition. Nitrogen cycle

18. Catalytic cycles of stratospheric ozone decomposition. Chlorine cycle

19. Catalytic cycles of stratospheric ozone decomposition. Bromine cycles

20. Acid rain and their environmental consequences

21. Acid rain and its causes

22. Alkaline sediments and their ecological consequences

23. Oxidation-reduction potential of the atmosphere

24. The role of photoxidants in the oxidation potential of the atmosphere.

25. The effect of photoxidants on living organisms.

26. Atmospheric aerosols, their characteristics and role in climate formation.

27. Chemical composition of troposphere aerosol. Ocean aerosols.

28.Terrigen aerosols.

29. Volcanic aerosols.

30. Anthropogenic aerosols.

31. The effect of atmospheric aerosols on living organisms. Direct and indirect effects of aerosols on human health.

32. Industrial dust and its negative effects on the body. The role of hygroscopic dust in the process of photosynthesis

33. The effect of aerosols on vegetation.

34. Stratospheric aerosols

35. Optical properties of aerosols.

36. Importance and composition of the hydrosphere. Chemical processes in the hydrosphere

37. Chemical composition of natural waters. Trace elements.

38. Dissolved gases. Biogenic substances, inorganic compounds of nitrogen and phosphorus.

39. Chemical reactions in aqueous solutions. Photolysis

42. River waters and their characteristics

43. Classification of water on Earth.

44. Chemistry of water and wear regimes. Alkalinity and pH.

45. Lakes. Classification of lakes,

46. Chemical composition of lake waters. Thermal regime of lakes.

47. Groundwater. Origin and distribution of groundwater

48. The main features of ocean water.

49. Hydrotherms Chemical processes in hydrothermal systems of the ocean.

50. Hydrological regime of the oceanosphere. Salt Ingredients.

51. Organic substances in sea water. Dissolved gases.

52. Chemical-ecological indicators of natural water quality and their importance

53. Water hardness and other organoleptic characteristics.

54. Permanganate and dichromate-oxidation (OCT). Biochemical demand for oxygen.

55. Pollution of the hydrosphere with organic matter.

56. Pollution of the hydrosphere with inorganic substances

57. Water purification and protection

58. Lack of drinking water.

59. Quality of drinking water

60. Opportunities for reuse of treated water. Desalination and use of water