

**PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE LUMUMBA
RUDN UNIVERSITY**

Tests for RUDN University Open Olympiad for Foreign Citizens

ECOLOGY (M)

Variant 1

A1. Which of the following substances is not a greenhouse gas? (2.5 points)

1. Water vapor.
2. Carbon dioxide.
3. Methane.
4. Sulfur dioxide.

A2. What process is associated with the high and constant content of oxygen in the atmosphere? (2.5 points)

1. Volcanism.
2. Photosynthesis.
3. Evaporation.
4. Rotation of the Earth.

A3. What is an environmental crisis? (2.5 points)

1. Increased pollution in the environment.
2. Short-term climate change.
3. Chronic imbalance in the ecosystem.
4. Natural disasters.

A4. Which of the following is not a property of living organisms? (2.5 points)

1. Irritability.
2. Heredity.
3. Unity of chemical composition.
4. Mineral composition.

A5. Which energy sources emit the least carbon dioxide (CO₂) into the atmosphere? (3 points)

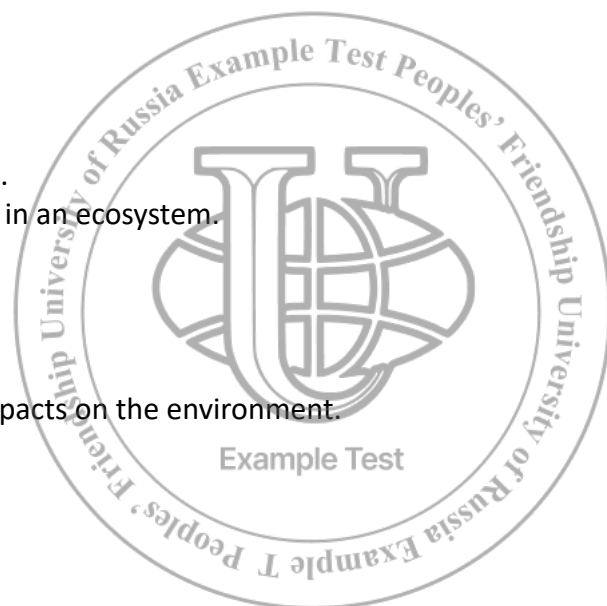
1. Oil.
2. Nuclear fuel.
3. Coal.
4. Gas.

A6. What does population ecology study? (3 points)

1. Relations between organisms within an ecosystem.
2. Interaction of organisms with the abiotic environment.
3. Dynamics of the number and structure of populations in an ecosystem.
4. Phenomenon of evolution.

A7. What is environmental risk assessment? (3 points)

1. Planning and promoting environmental projects.
2. Identifying and assessing the likelihood of negative impacts on the environment.
3. Studying the mechanisms of species extinction.



4. Forecasting climate change.

A8. Which stage of the product life cycle does extended producer responsibility belong to? (3 points)

1. Extracting raw materials for production.
2. Manufacturing products.
3. Distributing products to consumers.
4. Waste management after product use.

A9. What is the significance of an ecological niche for an organism? (3 points)

1. Ability of an organism to adapt and survive in its environment.
2. Ability of an organism to compete with other species.
3. Ability of an organism to form trophic levels.
4. Ability of an organism to produce oxygen.

A10. What is the accumulation of pollutants in living organisms when they enter from the external environment in small doses called? (3 points)

1. Bioaccumulation.
2. Bioconcentration.
3. Bioassimilation.
4. Biomigration.

A11. What two main types of cycles are considered within the framework of the concept of a circular economy? Choose all correct answers (3 points)

1. Economic cycles.
2. Biological cycles.
3. Production cycles.
4. Technical cycles.
5. Environmental cycles.

A12. Sources of dioxins in the environment are ... (3 points)

1. Combustion of organochlorine compounds, household waste combustion.
2. Emissions from landfills.
3. Non-ferrous metallurgy.
4. Tobacco products.

A13. Possible methods of long-term disposal of carbon dioxide include (3 points)

1. Burial on the sea/ocean floor in the form of gas hydrates.
2. Burial in the form of solid carbon dioxide on the ocean floor.
3. Dissolution of carbon dioxide in the sea water.
4. Burial of carbon dioxide in sealed geological structures.

A14. Which is not a consequence of an increased concentration of carbon dioxide in the atmosphere? (3 points)

1. Rising sea levels.
2. Increasing average surface temperature of the planet.
3. Increasing plant productivity.
4. Declining ozone concentrations in the Earth's ozone layer.

A15. What environmental hazards are associated with municipal waste landfills? (3 points)

1. Pollution of groundwater, atmospheric air, formation of greenhouse gases.
2. Lack of recycling.
3. Unsightly appearance.
4. Acoustic load due to gas emissions.

A16. Which of the zonal plant associations (phytocenoses) is most resistant to negative impacts? (3 points)

1. Coniferous forests.
2. Broadleaf forests.
3. Tundra vegetation.
4. Vegetation of mountain forests.

A17. What are the most significant causes of global warming? Choose all correct answers (3 points)

1. Rising sea levels.
2. Earth's trajectory around the Sun.
3. Prevailing southerly winds.
4. Increasing methane concentrations in the Earth's atmosphere.

A18. The entry of biogenic elements into water bodies leads to... Choose all correct answers (3 points)

1. Decreased oxygen concentration.
2. Expansion of plant habitats beyond the reservoir.
3. Eutrophication.
4. Population fragmentation.

A19. Radioactive iodine which enters the body accumulates ...? (3 points)

1. In the liver.
2. In erythrocytes.
3. In the thyroid gland.
4. In muscle tissue.

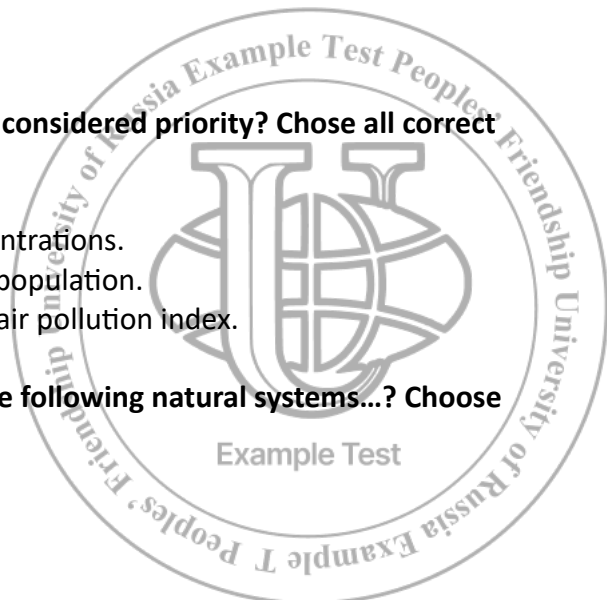
A20. What factors should be taken into account when choosing the best available technology for environmental protection? Choose all correct answers (3 points)

1. Economic efficiency of the technology.
2. Maximum product yield when using.
3. Possibility of industrial replication of the technology.
4. Many years' experience of effective use in industry.

A21. Which pollutants entering the atmosphere can be considered priority? Chose all correct answers (3 points)

1. Substances with minimal concentrations.
2. Substances with minimal maximum permissible concentrations.
3. Substances causing environmental pathologies in the population.
4. Substances making the maximum contribution to the air pollution index.

A22. The process of methane fermentation occurs in the following natural systems...? Choose all correct answers (3 points)



1. Upper layers of water bodies.
2. In bottom sediments.
3. In swamp systems.
4. On the surface of landfills and garbage dumps.
5. At the bottom of ocean trenches.

A23. By phase state, impurities in wastewater are divided into.... (3 points)

1. Organic and inorganic.
2. Soluble and insoluble.
3. Colloidal and true solutions.
4. Monomolecular and polymolecular.

A24. The most effective methods for cleaning gas-air emissions from aerosols are... Choose all the correct answers (3 points)

1. Filtration.
2. Flotation.
3. Absorption
4. Centrifugation.
5. Electrofiltration.

A25. The priority pollutants of atmospheric (surface) runoff are... Choose all the correct answers (3 points)

1. Suspended solid particles.
2. Heavy metal ions.
3. Oil products.
4. Artificial organic substances.

A26. What is the advantage of using groundwater over surface water as a drinking water supply? (3 points)

1. It contains fewer dissolved salts.
2. It requires less treatment before use as drinking water.
3. It is characterized by unlimited water flow.
4. It has lower hardness.

A27. When chemical elements migrate, the toxicity of their compounds is determined... (3 points)

1. solely by the properties of the element and does not depend on the forms of migration.
2. by the structure of the molecule, the forms of chemical compounds.
3. solely by the properties of the organism which encounters pollution.
4. solely by the properties of the environment where the element migrates.

A28. Is it possible to burn sewage sludge? (3 points)

1. No, such technology does not exist.
2. Yes. It is an effective and safe technology.
3. It is possible, but this technology has serious environmental limitations.
4. It may be one of the best available technologies.

A29. When assessing the carbon footprint of a product, ... is taken into account. (3 points)

1. The amount of carbon dioxide emissions during product production.

2. The amount of greenhouse gas emissions and absorption in the production system.
3. The amount of carbon used to produce the product.
4. The amount of carbon in the waste from the production and consumption of certain types of the product.

A30. Acetogenic bacteria are involved in the processes of... (3 points)

1. Aerobic oxidation of food waste.
2. Methane fermentation.
3. Lactic acid fermentation.
4. Butyric acid fermentation.

A31. What type of human activity leads to the strongest and most pronounced change in the natural environment? (3 points)

1. Construction of energy facilities.
2. Creation of natural parks.
3. Construction of buildings.
4. Mining industry.

A32. Which of the following gases has the highest global warming potential? (3 points)

1. Carbon dioxide.
2. Methane.
3. Nitrous oxide.
4. Nitrogen dioxide.

A33. In which climate zone is solar energy most effective? (3 points)

1. Tropical dry climate.
2. Equatorial climate.
3. Temperate marine climate.
4. Arctic climate.

A34. What are the names of fossil fuels which include rocks and minerals rich in organic matter? (3 points)

1. Argillites.
2. Bauxites.
3. Caustobioliths.
4. Carotenoids.

