**8D050 Biological and Related Sciences**

**Topics of questions for tickets**

***Questions about the third block –***

***50 - for SEP of the natural-technical direction***

###001 (question number)

Modern approaches to the study of the evolution of living organisms

###002 (question number)

The molecular nature of hereditary diseases

###003 (question number)

Of RNA interference: theoretical and practical aspects

###004 (question number)

Scientific systematics of insects and principles of their classification

###005 (question number)

Introduction potential of the flora of Kazakhstan and your region

###006 (question number)

Identification and discovery of new substances in the studied and studied plant species, obtaining substitutes for imported products

###007 (question number)

Medicinal plants and their involvement in the health care system. Characteristics of recognized and promising medicinal plants of Kazakhstan, taking into account the availability of raw materials

###008 (question number)

Fur and hunting-commercial animals of Kazakhstan. Products received from them. Stocks, rational use and protection

###009 (question number)

Theoretical aspects of protection and reproduction of biological resources. The importance of the environment in increasing the productivity of biological resources in Kazakhstan

###010 (question number)

International experience in the conservation of biological resources

###011 (question number)

Principles of identifying faunistic and floristic regions

###012 (question number)

Climatic factors of the division of the Earth into biogeographic regions

###013 (question number)

New biodiversity conservation strategy: transition from protection of certain species to protection of communities

###014 (question number)

Uncontrolled use of flora and fauna objects in economic activities

###015 (question number)

The emergence of adaptations and migration as factors of evolution

###016 (question number)

Variability and genetic structure of natural populations

###017 (question number)

The fitness of organisms as a result of evolution.

###018 (question number)

The main directions of development of biotechnology (genetic, cell engineering, cloning and etc.).

###019 (question number)

Selection and description of the experimental techniques, mastering methods of measuring and determining indicators

###020 (question number)

Structure of a Patent. Patent Search. Conditions of patentability of an invention

###021 (question number)

Processing of experimental research results. Fundamentals of the theory of random errors and methods for assessing random errors in measurements

###022 (question number)

Clonal micropropagation and plant health improvement

###023 (question number)

Cell selection methods, stages, possibilities of improving plant varieties.

###024 (question number)

Stages of preparation of a permanent micropreparation. The direct and indirect methods of preparation of preparations

###025 (question number)

Genetic engineering – construction of recombinant DNA.

###026 (question number)

Aerobic wastewater treatment methods. Intensive and extensive cleaning methods.

###027 (question number)

Biological and ecological bases of biometodes of pest control in animal husbandry

###028 (question number)

The importance of vitamins in nutrition. Water-soluble vitamins. Fat-soluble vitamins

###029 (question number)

Natural regulators of the number of bloodsucking Diptera

###030 (question number)

Pathogens of harmful insects and diseases caused by them: viral, bacterial, fungal, microsporidial, helminthiasis.

###031 (question number)

Shallow-water fish is regulators of the number of aquatic phases of blood-sucking diptera insects.

###032 (question number)

Insectivorous birds is regulators of the number of imagos and larvae of blood-sucking Diptera.

###033 (question number)

Aquatic mermitids is parasites of blood-sucking Diptera.

###034 (question number)

Deciphering the role of the biological clock for understanding the principles of biological organization and the essence of life

###035 (question number)

The importance of genetics for the national economic activity of man. Achievements of breeding at the present stage.

###036 (question number)

Modern efficient technologies for the use of natural resources

###037 (question number)

Unconventional methods of using raw materials

###038 (question number)

The gene pool of cultivated and wild forms of plants and animals. The use of mutations in breeding.

###039 (question number)

Device of photo-, mechano-, thermo- and chemoreceptors. Transmembrane signal transmission methods

###040 (question number)

Methods for obtaining cell culture from different tissues and different animals (fibroblasts, epithelial cells, hepatocytes, etc.)

###041 (question number)

Stem cells and their population regulation. The role of stem cells in norm and pathology. Anoptosis

###042 (question number)

Independent combination of features. The rule of purity of gametes. Penetrance, expressiveness, reaction rate.

###043 (question number)

Molecular bases of heredity. Chromosomal sex determination. Haplodiploidy. Parthenogenesis.

###044 (question number)

Methods of genetics research: hybridological, cytogenetic, biochemical, population, ontogenetic, immunogenetic, genealogical, etc.

###045 (question number)

Features of prokaryotic genetics. Genetic processes in prokaryotes: conjugation, transduction.

###046 (question number)

Molecular-genetic foundations of evolution. Man as an object of genetic research.

###047 (question number)

The problem of prevention of parasitosis in modern conditions, and in general

###048 (question number)

Classical synthetic theory of evolution: factors, elements, ground state

###049 (question number)

Methodological principles of modern biology

###050 (question number)

Ecological map of the world. The concept of the modern biosphere