**MATERIALS FOR THE ENTRANCE EXAMS TO THE DOCTORAL PROGRAM ACCORDING TO THE EDUCATIONAL PROGRAM 8D05102-BIOTECHNOLOGY**

**FOR THE ACADEMIC YEAR 2023-2024**

Field of education:

**8D05 Natural sciences, mathematics and statistics**

Code and classification of training areas:

**8D051 Biological and related sciences**

Group of educational programs:

**D050 Biological and related sciences**

**Ticket questions**

***Questions for the third block***

***50 - for the SSP in the field of science and technology***

###001

Effect of different sources of carbon, nitrogen, vitamins and trace elements on the growth of microorganisms

###002

Influence of temperature on growth and physiological activity of fungi

###003

Ways to improve microbiological production

###004

Which plant biotechnology methods and technologies are most commonly used today

###005

Methods of plant biotechnology for plant protection against pests and diseases

###006

Biotechnology, the ways of its development

###007

The market for the latest biotech drugs and products

###008

The latest advances in biotechnology

###009

The role of biotechnology in the modern world

###010

Genetically engineered organisms in medicine, prospects for development

###011

The use of genetically engineered organisms in agriculture

###012

Transgenic varieties of agricultural plants tolerant to herbicides

###013

Transgenic varieties of agricultural plants resistant to insect pests

###014

Transgenic varieties of agricultural plants resistant to viral diseases

###015

Transgenic varieties of agricultural plants with improved quality characteristics

###016

The role of genome mapping in plant biotechnology

###017

Modern methods of genodiagnosis and prospects for development

###018

The importance of stem cells for molecular biotechnology, prospects for development

###019

Monoclonal antibodies and their application in biotechnology

###020

Stem cells and their application in biotechnology

###021

Prospects for the use of genetically modified organisms

###022

Possibilities of plant genetic engineering to improve photosynthetic efficiency

###023

Advantages of plant bioreactors for the production of biotechnological products

###024

Biotechnology methods are used to produce plant bioactive substances

###025

Obtaining plants that are resistant to various stressors

###026

Transgenic plants and animals as bioreactors

###027

Innovation in biotechnology: procedure for commercialization and technology transfer

###028

Biotechnology methods to create plants with improved nutritional properties

###029

The use of PCR in the diagnosis of hereditary diseases

###030

Problems and challenges associated with the application of plant biotechnology

###031

Synthesis of new antibiotics

###032

The advantages of transgenic plants

###033

Methods of plant biotechnology in the development of new drugs

###034

Technologies to improve storage and transportation of agricultural products

###035

Plant biotechnology methods for the conservation of rare and endangered plants

###036

Ethical issues related to the application of plant biotechnology

###037

Biotechnological methods in breeding new plant varieties

###038

Advantages of genetically modified plants over traditional varieties

###039

Biotechnological approaches to improve carbon sequestration by plants

###040

Factors in assessing the safety of biotechnological plant products

###041

Cryopreservation of animal gametes and embryos: significance and prospects

###042

Promising current research directions in plant biotechnology

###043

Molecular methods for genetic modification of plants

###044

Embryo bank: significance for animal husbandry, medicine and veterinary science

###045

Plasmids, their properties and use in genetic engineering

###046

Plant biotechnology in biodiversity conservation and environmental protection

###047

Plant biotechnology methods for sustainable agriculture and environmental sustainability

###048

Main advantages of biotechnology in agriculture

###049

Chemical synthesis of a gene

###050

Blot hybridization (Southern blotting)