**al-Farabi KAZAKH NATIONAL UNIVERSITY**

**Faculty biology and biotechnology**

**Educational program for the specialty "7M05114-Virology "**

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**MIDTERM**

**on the basic obligatory**

Architecture of viruses: basic components of viruses, virus genomes

Enveloped and non-enveloped viruses, Structural proteins

Types of nucleic acid DNA, RNA

Disease caused by viruses, Specific Viral Infections

General properties of human viruses

Cultivation and Diagnostic methods of Viruses: General methods for isolation, identification

Pathogenesis of viruses, mode of transmission

Types of infection, clinical features of infections, epidemiology.

Immune response to infections, treatment, prevention & control and laboratory diagnosis.

Direct methods of detection – light microscopy, electron microscopy and fluorescence microscopy.

Serological methods - haemagglutination; complement fixation;

Immunofluorescence methods, ELISA and Radioimmunoassays, Western Bloting

Infectivity assay for animal and bacterial viruses - plaque method, LD50, ID50, IED50

The laboratory diagnosis of viral infections

Virus isolation methods of the different types of viruses

Coronaviruses and SARS. Hepatitis viruses

Virus isolation methods of the different types of viruses

Retroviruses, Respiratory viruses. Retroviruses HIV, Respiratory viruses Influenza virus

Virus isolation methods of the different types of viruses

Herpesviruses. Herpesviruses: alphaherpesviruses: herpes simplex and varicella betaherpesviruses: cytomegalovirus gammaherpesviruses: Epstein-Barr virus