Казахский национальный университет имени аль-Фараби

Факультет географии и природопользования

Кафедра географии, землеустройства и кадастра

Магистратура

ПРОГРАММА

**«ГИС в демографии»**

**«7M05204 – Геопространственное управление окружающей средой», 1 курс, а/о**

**Алматы, 2021**

ВОПРОСЫ ЭКЗАМЕНАЦИОННОГО КОНТРОЛЯ

1. Definition of GIS. Basic components and functionality of GIS.

2. The history of the development of hardware and software GIS. GIS classifications.

3. Data sources for GIS: geographic maps, remote sensing data.

4. Data sources for GIS: satellite positioning systems, geodetic technologies, databases.

5. Hardware GIS. Evolution of computer hardware. Classification of computers.

6. Hardware GIS. Processor, primary memory, secondary memory, communication devices.

7. Hardware GIS. I / O peripheral devices.

8.Functional classification of GIS software. An overview of the ArcGIS GIS software package.

9. Overview characteristics of additional GIS modules ArcGIS.

10. Geographic coordinate systems. Projection coordinate systems.

11. Raster model of representation of spatial data in GIS. Advantages and disadvantages of a raster model. The most common raster formats for representing spatial data in GIS.

12. Color models used to display full color rasters. Georeference of raster images. 13.Vector model as a way to represent spatial data in GIS. Peculiarities of organizing communication between vector objects: vector-non-topological model, vector-topological model. Georelational and object-oriented vector data models. 14. An overview of the vector GIS data format ArcGIS - geodatabase.

15. Features of symbolization of vector geodata.

16. Methods of classification of quantitative geodata in GIS.

17. Elementary spatial GIS analysis.

18. Spatial statistics in GIS.

19. Overlay operations in GIS.

20. Analysis of proximity in GIS.

21. Reclassification and regionalization using GIS technologies.

22. Generalization of vector geo objects in GIS.

23. Geoprocessing of data in GIS.

24. Basic operations of network analysis. Network analysis tasks.

25. Geocoding in GIS.

26. The main functions of cartographic raster algebra. Raster cell statistics, neighborhood statistics, zonal statistics.

27. Analysis of hypsometric surfaces in GIS. Hydrological GIS modeling.

28. Data output from the GIS environment. Comparison of the process of creating a map using traditional cartography and GIS.

29. Data output from the GIS environment. General recommendations for creating a map. The main elements of the map.

30. Data output from the GIS environment. Design options on the map of vector layers.