The program of the entrance exam for applicants to the PhD
for the group of educational programs
D070 – «Economics»

I. General provisions

1. The program was drawn up in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 600 «On Approval of the Model Rules for Admission to Education in Educational Organizations Implementing Educational Programs of Higher and Postgraduate Education» (hereinafter referred to as the Model Rules).

2. The entrance exam for doctoral studies consists of writing an essay, an exam in the profile of a group of educational programs and an interview.

Блок	Баллы
1. Interview	30
2. Essay	20
3. Exam according to the profile of the group of the educational program	50
Total admission score	100/75

3. The duration of the entrance exam is 3 hours 10 minutes, during which the applicant writes an essay and answers the electronic examination ticket. The interview is conducted at the university premises before the entrance exam.

II. Procedure for the entrance examination

1. Applicants for doctoral studies in the group of educational programs D070 - «Economics» write a problematic / thematic essay. The volume of the essay is at least 250words.

The purpose of the essay is to determine the level of analytical and creative abilities, expressed in the ability to build one's own argumentation based on theoretical knowledge, social and personal experience.

Types of essays:
- motivational essay revealing the motivation for research activities;
- scientific-analytical essay justifying the relevance and methodology of the planned research;
- problem/thematic essay reflecting various aspects of scientific knowledge in the subject area.

2. The electronic examination card consists of 3 questions

Topics for exam preparation according to the profile of the group of
the educational program:

Discipline "Microeconomics (advanced level)"

Topic 1. Consumer behavior. Substitution effect and income effect according to Hicks and Slutsky.
Subtopics: Substitution effect and income effect according to Slutsky and Hicks. Cross effects of substitution and income. Slutsky equation for direct and cross effects.

Topic 2. Consumer gain. Compensating and equivalent change in income.
Subtopics: Compensated demand. Definition, economic meaning, areas of application. Market demand according to Marshall and Hicks. Economic meaning of differences. Equivalent and compensating changes in income.

Topic 3. Theory of revealed preferences. Market demand.
Subtopics: The concept of "revealed preferences". Weak axiom of revealed preferences. Economic meaning. Cases of its violation. Price indices and quantity indices (Paasche, Leissperes, total consumer expenditure) and their relationship with revealed preference theory. Application of revealed preference theory to assess the standard of living and government social programs.

Topic 4. Production functions and scientific and technological progress.
Subtopics: Axioms of the production function. The relationship between changes in the total, average and marginal product of one and two factors of production. Main types of production functions: Cobb-Douglas, Leontief, linear, CES. Equilibrium of the firm as a problem of profit maximization and as a problem of cost minimization. Comparative statics of the firm. Supply function of the firm. Cost function. Short-term and long-term growth trajectory of the firm. Optimal path of production expansion. Types of technical progress: neutral, capital-intensive, labor-intensive. The relationship between costs and factor productivity.

Topic 5. Market interaction under imperfect competition.
Subtopics: Perfect competition. Conditions for maximizing profits for a firm and the entire market in the short and long term. The role of economies of scale in determining the number of firms operating in an industry. Monopoly. Taxation of a monopolist: different options. Losses to society from a monopoly. Problems of natural monopoly. Multi-product and multi-plant monopolist: choosing the optimal number of plants and products in the production of interchangeable and complementary goods. Price discrimination. Monopolistic competition. The condition for equilibrium of a firm and an industry in the long term.

Topic 6. Strategic behavior of firms in the market

Subtopics: Oligopoly: analytical models. Competition in quantity and price competition. Cournot model. Bertrand model with a homogeneous product. Cartel: problems of stability in the long term. Oligopoly: game theory. Key concepts: game strategy, dominant strategy, Nash equilibrium, pure and mixed strategies. Application of game situations for analysis and solution of applied problems. Pricing strategies. Threat of entry of a new firm. Price war strategy. Games and externalities. Insurance games.

Topic 7. General economic equilibrium and social welfare.

Subtopics: Conditions of existence, uniqueness and stability of competitive equilibrium. Welfare theorems. Walras's law. General equilibrium of consumers for an exchange economy. Derivation of the contract curve. Equilibrium under monopoly. General equilibrium of producers in an economy with two factors of production and two goods. Efficiency and fairness. Application of welfare theory to income taxation. Assessment of social equality. Income curve. Lorenz curve. Gini coefficient. The role of the state in solving the problem of social equality. Social choice of society.

Topic 8. Microeconomics of foreign trade.

Subtopics: International division of labor. Ricardo's model. Constant, decreasing and increasing labor productivity. Heckscher-Ohlin model. The role of specialization with identical technologies. Construction of the commodity exchange curve. The impact of the introduction of import duties on public welfare in a small country and in a large country. Partial and general analysis of the consequences of a country's entry into a customs union. Pricing in the foreign exchange market.

Discipline "Macroeconomics (advanced level)"

Topic 1. Theory of intertemporal choice.

Subtopics: Keynesian theory of consumption. The simplest consumption function. Consequences from it. The theory of intertemporal choice of I. Fisher. Intertemporal budget constraint. Intertemporal preferences. Optimal intertemporal choice. The influence of income and interest rate on consumption.

Topic 2. Aggregate demand: investment.

Subtopics: Keynesian model of investment. Gross investment and net investment. Change in physical stock of capital. Net present value of the project. Internal present value of the project. Investment function in the Keynesian model. Neoclassical model of investment. Production function and marginal product of capital. Investment decisions of the firm. Optimal level of capital and the corresponding level of investment. Tobin's Q-theory.

Topic 3. Analysis of aggregate supply in the classical theory.

Subtopics: Definition of aggregate supply. Marginal product of labor and real wages. The labor market. The firm's demand function for labor. Household labor

supply. Aggregate supply in classical theory. Wage flexibility. Derivation of the aggregate supply curve.

Topic 4. Aggregate supply in Keynesian theory.
Subtopics: Derivation of the aggregate supply curve with relative wage rigidity. The extreme Keynesian case. Aggregate supply from the standpoint of microeconomics.

Topic 5. Business cycles. Propagation of impulses.
Subtopics: Macroeconomic fluctuations. Famous business cycles. The model of interaction of the multiplier-accelerator. Types of cyclical fluctuations. Stochastic fluctuations. Real business cycles. Flexible prices. Channels of impulse propagation: through changes in physical capital and through changes in labor supply. Substitution of labor over time.

Topic 6. Macroeconomic policy in an open economy.
Subtopics: Equilibrium in the goods market in an open economy. IS and LM curves and their shifts. World interest rate. Small open economy with a fixed exchange rate. Perfect capital mobility. Equilibrium. The impact of fiscal policy, monetary policy. Currency devaluation. Fiscal policy and monetary policy in the context of capital flow regulation.

Topic 7. Theories of macroeconomic policy.
Subtopics: Target indicators and instruments. Tinbergen's model. Monetarism and Keynesianism. The choice of economic policy instruments under uncertainty. Adaptive expectations. Labor market. Expected and unpredictable inflation and real wages. Rational expectations. Critique of R. Lucas's theory of economic policy. Government budget deficit. Government budget constraint. Methods of financing the budget deficit. Budget deficit and inflation. Seigniorage. Inflation tax.

Course "Econometrics (advanced level)"

Topic 1. Classical regression model.
Subtopics:Multiple linear regression. Matrix form of the model. Estimation of regression coefficients by the least squares method. Geometric interpretation. Assumptions of the classical model. Testing the significance of regression coefficients using t-statistics. Evaluation of the quality of the regression equation. Linear restrictions on the coefficients. Chow test. Analysis of the consequences of variable misspecification. Partial correlation.

Topic 2.Various aspects of multiple regression.
Subtopics: Consequences of multicollinearity and ways to eliminate it. Dummy variables. Nonlinear regression models. Logarithmic, semilogarithmic, power models. Inverse function. Choosing the form of an econometric model. Transformation of

variables. Stochastic regressors. The method of instrumental variables. Tests for detecting heteroscedasticity. Methods of correcting heteroscedasticity. White standard errors. Weighted least squares. Generalized least squares. Autocorrelation of the random term. Methods for eliminating autocorrelation.

Topic 3. Maximum Likelihood Method
Subtopics: Likelihood function. Estimation of coefficients and variance of the random term of the multiple linear regression model using the maximum likelihood principle. Comparison with the least squares method. Consistency of estimates. Binary choice models. Logit model and probit model. Estimation of model parameters.

Topic 4. Systems of simultaneous equations
Subtopics: Structural and reduced form of models. The problem of model specification. Indirect least squares method. Instrumental variables. Two-step least squares method.

Topic 5. Dynamic autoregressive models
Subtopics: Model with distributed lags. Autoregressive model. Causes of lags. Money supply and price level. Median lag and mean lag. Lag operator. Operator form of the model.

Topic 6. Stationary processes
Subtopics: Stationarity. Examples of stationary and non-stationary processes. White noise. Random walk. Trends. Seasonality. Taking successive differences. Testing data for stationarity. Autocorrelation function. Partial autocorrelation function. Unit root tests. Augmented Dickey-Fuller test. Autocorrelation process. Moving average model. Autoregressive moving average process. Integrated process.

Topic 7. Multivariate time series models
Subtopics: Simultaneous analysis of several variables. Vector autoregressive model. Identification problem. Estimation. Granger conditionality analysis. Impulse return functions. Engle-Granger test. Cointegration. Cointegrating vector. General trends. Johansen test. Error correction model.

Research Methodology Discipline

Topic 1. Overview of Science and Scientific Method.
Subtopics: Methodological and systematic approach to obtaining new knowledge. Scientific knowledge based on objective data. Planned scientific research. Accumulation of empirical data. Scientific method as the basis of all scientific research. A set of research principles and methods. Reliable research results. Empirical approach. Observations. Hypotheses. Experiments. Analysis. Replication.

Topic 2. Objectives of Scientific Research.

Subtopics: Objectives of scientific research in a broad sense. Reasonable inferences about the relationship between two or more variables. Three main objectives of scientific research: description, prediction, and understanding/explanation. Description as a process of defining, classifying, or categorizing phenomena of interest. Qualitative and quantitative research.

Topic 3. Choosing a Research Design
Subtopics: Classification of research methods. Desk and field research. Preliminary and final research. Summary: descriptive and experimental (causal) studies. Cross-sectional and longitudinal studies. Multiple and single studies. Research issues and problems.

Topic 5. Sample planning
Subtopics: Forming a preliminary research plan. Sample planning.

Formation of a sample from the general population. The process of sample selection. Types of samples. Sample size. Sample as a subgroup of the general population. Sample vs. General population. Non-probability sampling. Probability sampling.

Topic 6. Using secondary data
Subtopics: Secondary data. Differences between secondary and primary data. Advantages and disadvantages of secondary data. Different sources of secondary data. Use of secondary data. Published secondary data. Computerized databases. Impact of technology on research: big data. Ethical issues related to the use of secondary data.

Topic 7. Qualitative Research Methods
Subtopics: Collecting qualitative data. Key issues in qualitative data analysis. Features of qualitative research methods. Application areas of qualitative research. Preparing qualitative data for analysis. Using computer methods of qualitative data analysis. The main goal of the focus group. Obtaining information on issues of interest to the researcher. Designing the focus group environment. Focus group procedure. In-depth interview.

Topic 8. Causal research design: experimentation.
Subtopics: The scientific meaning of causality. Conditions of causality. Causal relationship between two variables. Concomitant variation. Temporal order of occurrence of variables. Absence of other possible causal factors.

III List of references

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