आर्थिक योजना तथा तथ्याङ्क सेवा, तथ्याङ्क समूह, सहायक पाँचौं तह, तथ्याङ्क सहायक पदको खुला र अन्तर सेवा प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम ।

द्वितीय पत्र (Paper II) :-
<u>सेवा सम्बन्धित कार्य-ज्ञान (Job Based Knowledge)</u>
खण्ड (Section) (A):- ५० अङ्क

1. Mathematics   **(2x10 marks, 2x5 marks)**

  1.1 Sets, Functions, Series and Trigonometry

      1.1.1 Sets, relations and functions

      1.1.2 Sequence and series

      1.1.3 Permutations and combinations

      1.1.4 Principle of mathematical induction

      1.1.5 Trigonometric functions and inverse trigonometric functions

      1.1.6 Straight lines, conic sections

  1.2 Number System, Inequalities, Matrices and Determinants

      1.2.1 Percentage, rates, ratio and proportion

      1.2.2 Complex numbers and quadratic equations

      1.2.3 Linear inequalities

      1.2.4 Matrices (order, types, operations, transpose of matrix, adjoint of matrix, inverse of matrix and solution of linear equations by matrix)

      1.2.5 Determinants (determinant of matrix, minor, co-factor, properties, Cramer's rule)

  1.3 Limits, Continuity, Derivatives and Integrals

      1.3.1 Limits, evaluations of limits, continuity, discontinuity

      1.3.2 Derivatives, applications of derivatives

      1.3.3 Integrals, fundamental theorem of calculus

      1.3.4 Applications of the integrals: applications in finding the area under simple curves (especially of lines, circle, parabola, ellipse)

2. General Economics   **(2x5 marks)**

  2.1 Central problems in economics, concept and types of micro-economic analysis, concept and application of micro-economic models, distinction between micro- economics and macro-economics

  2.2 Law of demand, demand function with types, movement and shift in demand curves, determinants of demand

  2.3 Law of supply, supply function with types, determinants of supply, types and measurement elasticity of demand and supply

  2.4 Concept and features of perfect competition, short and long run equilibrium in a competitive market

  2.5 Cobb-Douglas production function and its applications in econometric analysis

3. Research Methodology   **(2x5 marks)**

  3.1 Concept of research methods, research problem, research objectives, research hypothesis vs statistical hypothesis

  3.2 Research designs

प्रदेश लोक सेवा आयोग, मधेश प्रदेश

आर्थिक योजना तथा तथ्याङ्क सेवा, तथ्याङ्क समूह, सहायक पाँचौं तह, तथ्याङ्क सहायक पदको खुला र अन्तर सेवा प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम ।

3.3 Concept of reliability and validity

3.4 Preparation of research proposal, preparation of a scientific report, referencing and citations, review of research article

खण्ड (Section) (B):- ५० अङ्क

4. Statistics   (1x10 marks 3x5 marks)

4.1 Descriptive Statistics

4.1.1 Data collection techniques, presentation and organization of data

4.1.2 Central tendency, dispersion, moments, skewness, and kurtosis

4.1.3 Correlation coefficient, simple and multiple linear regression model,

4.1.4 Assumptions of linear regression, goodness of fit of the model, prediction on regression model, coefficient of determination

4.1.5 Regression (panel and cross-sectional data) analysis

4.1.6 Multicollinearity, autocorrelation

4.2 Inferential Statistics

4.2.1 Samples surveys and sampling methods, sampling and non-sampling errors

4.2.2 Theory of estimation, theory of hypothesis testing, parametric and nonparametric tests

4.2.3 Probability and its applications, application of conditional probabilities. Bayes' theorem

4.2.4 Mathematical expectation for discrete and continuous random variables

4.2.5 Discrete probability distributions: Binomial and Poission distribution

4.2.6 Continuous probability distributions: normal distribution and exponential distribution

4.3 Applied Statistics

4.3.1 Introduction of ANOVA

4.3.2 Fundamentals of experimental designs

4.3.3 Demography, population growth models, vital statistics

4.3.4 population projection

4.3.5 Index numbers (weighted and unweighted index numbers, cost of living index)

4.3.6 Time series analysis (trend, seasonal variation, cyclic variation, irregular variation and methods of least square)

5. Official Statistics

5.1 System of Official Statistics   (1x10 marks 3x5 marks)

5.1.1 Issues, coverage and role of different agencies in official statistical system of Nepal

5.1.2 Consolidated national statistical plan (CNSP) of Nepal, National strategy for the development of statistics (NSDS)

5.1.3 Nepal standard industrial classification (NSIC), Nepal standard occupational classification (NSOC), harmonized system codes (HS), Central product classification (CPC)

5.1.4 Fundamental principle of official statistics, Concept of open data and big data

5.1.5 Statistical act 2079, statistics rules 2080, consolidated national statistical plan of Nepal,

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national strategy for the development of statistics

5.2 Censuses and Surveys

5.2.1 Concept, objectives, design, uses and major findings of the latest censuses:

    5.2.1.1 National population and housing census

    5.2.1.2 National census of agriculture

    5.2.1.3 Census manufacturing establishments

    5.2.1.4 Economic census

5.2.2 Concept, objectives, sampling design, uses and major findings of the latest surveys:

    5.2.2.1 Nepal living standard survey

    5.2.2.2 Nepal labor force survey

    5.2.2.3 Nepal multiple indicators cluster survey

    5.2.2.4 Nepal demographic health survey

    5.2.2.5 Household budget survey

    5.2.2.6 Economic Survey of Madhesh Province

5.3 National accounts and other official statistics of Nepal

5.3.1 Concept and objectives of system of national accounts, concept of GDP. GNP. GNI and GNDI

5.3.2 National accounts of Nepal

5.3.3 Goals and indicators of current periodic plan

5.3.4 Sustainable development goals

5.3.5 Human development index.

5.3.6 Government finance statistics of Nepal

5.3.7 Tourism statistics of Nepal

5.3.8 Trade statistics of Nepal / Madhesh Province

5.3.9 Vital registration system in Nepal / Madhesh Province

द्वितीय पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरु सोधिनेछ ।

	द्वितीय पत्र (विषयगत)				
पत्र	विषय	खण्ड	अङ्कभार	छोटो उत्तर	लामो उत्तर
द्वितीय	सेवा सम्बन्धित कार्य-ज्ञान (Job Based Knowledge)	(A)	५०	६ प्रश्न X ५ अङ्क = ३०	२ प्रश्न X १० अङ्क = २०
		(B)	५०	६ प्रश्न X ५ अङ्क = ३०	२ प्रश्न X १० अङ्क = २०