

**लोक सेवा आयोग**  
नेपाल आर्थिक योजना तथा तथ्याङ्क सेवा, तथ्याङ्क समूह, राजपत्राङ्कित तृतीय श्रेणीका पदहरूको खुला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइने छ :

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क:- २००

द्वितीय चरण :- सामूहिक परीक्षण र अन्तर्वार्ता

पूर्णाङ्क :- ४०

**प्रथम चरण – लिखित परीक्षा योजना (Written Examination Scheme)**

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या X अङ्कभार	समय
प्रथम	तथ्याङ्क शास्त्र I	१००	४०	वस्तुगत बहुवैकल्पिक(MCQs)	१०० X १ = १००	१ घण्टा १५ मिनेट
द्वितीय	तथ्याङ्क शास्त्र सम्बन्धी II	१००	४०	विषयगत (Subjective)	१० X १० = १००	३ घण्टा

**द्वितीय चरण**

विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०	सामूहिक छलफल (Group Discussion)	३० मिनेट
व्यक्तिगत अन्तर्वार्ता	३०	मौखिक	-

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- पाठ्यक्रमको प्रथम र द्वितीय पत्रको विषयवस्तु फरक फरक हुनेछन् ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- प्रथम तथा द्वितीयपत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ :

प्रथम पत्रका एकाई	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
प्रश्न संख्या	5	15	15	15	10	5	5	5	2	3	5	2	3	5	5
द्वितीय पत्रका खण्ड	<b>A</b>			<b>B</b>			<b>C</b>			<b>D</b>					
द्वितीय पत्रका एकाई	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
प्रश्न संख्या	2			3			3			2					

- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नका लागि तोकिएका १० अङ्कका प्रश्नहरूको हकमा १० अङ्कको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग(Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- द्वितीय पत्रमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोहीखण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- यस भन्दा अगाडि लागू भएको माथि उल्लिखित समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागू मिति :- २०६२/२/२३ देखि (२०७२/०७/२४ को निर्णय अनुसार सामूहिक परीक्षण समावेश)

प्रथम पत्र :- तथ्याङ्क शास्त्रI

1. Probability and Distribution (5%)
  - 1.1 Basic properties of probability
  - 1.2 Addition rule of probability
  - 1.3 Independent and mutually exclusive events
  - 1.4 Conditional probability
  - 1.5 Multiplication rule of probability
2. Random Variables (15%)
  - 2.1 Notion of random variable
  - 2.2 Probability distribution
  - 2.3 Binomial, Poisson and Normal distribution
  - 2.4 Mathematical expectation
  - 2.5 Distribution of independent random variables
  - 2.6 Notion of likelihood function
3. Mathematics for Statistics (15%)
  - 3.1 Rates, Ratios and Proportion
  - 3.2 Number system
  - 3.3 Logarithm
  - 3.4 Permutation and combination
  - 3.5 Principle of least square
  - 3.6 Rank of a matrix
  - 3.7 Inverse of a matrix
  - 3.8 Quadratic forms
  - 3.9 Eigen values
4. Descriptive statistics (15%)
  - 4.1 Measures of central tendency
  - 4.2 Measures of dispersion
  - 4.3 Measures of kurtosis
  - 4.4 Measures of skewness
  - 4.5 Measures of positional statistics: quartile, quintile, & decile
  - 4.6 Outliers and their consequences
5. Correlation and Regression (10%)
  - 5.1 Simple, partial and rank correlation
  - 5.2 Multiple correlation and coefficient of determination
  - 5.3 Simple and multiple regression
  - 5.4 Measures and tests of goodness of fit in regression
  - 5.5 Tests for normality in regression
  - 5.6 Logit models
6. Estimation (5%)
  - 6.1 Properties of a good estimator
  - 6.2 Methods of estimation
  - 6.3 Properties of maximum likelihood estimator
  - 6.4 Best linear unbiased estimator
  - 6.5 Interval estimation
7. Hypothesis testing (5%)
  - 7.1 Simple and composite hypothesis
  - 7.2 Type I and type II error
  - 7.3 Unbiased test
  - 7.4 Likelihood ratio test
  - 7.5 z, t, chi-square and F tests
  - 7.6 p value

8. Sampling methods and Distributions (5%)  
8.1 Simple random sampling  
8.2 Stratified random sampling  
8.3 Systematic sampling  
8.4 Standard errors  
8.5 Sampling distribution  
8.6 Distribution of sample mean  
8.7 Student's t and chi-square distribution
9. Time-series Analysis (2%)  
9.1 Trends, and seasonal & cyclical variations  
9.2 Autocorrelation and its test  
9.3 Forecasting
10. Economics (3%)  
10.1 Endogenous and exogenous variables  
10.2 Absolute and relative change  
10.3 Concept of marginal and elasticity  
10.4 Consumption function, saving, capital formation and capital output ratio  
10.5 Cobb-Douglas production function  
10.6 Gini Coefficients
11. Data collection and processing activities (5%)  
11.1 Data gathering process  
11.2 Questionnaire design  
11.3 Methods and techniques of data summarization/analysis  
11.4 Errors in surveys and censuses: Control and measurement of errors  
11.5 Quality evaluation of data
12. National accounts statistics of Nepal (2%)  
12.1 System of National Accounts (SNA) – Importance and uses  
12.2 Macro economic aggregates – Nominal and Real GDP, GNI, Consumption, Saving
13. Population statistics of Nepal (3%)  
13.1 Major sources of population data  
13.2 Population censuses of Nepal  
13.3 Composition and distribution of population  
13.4 Fertility, Mortality, Migration  
13.5 Population growth and population projection
14. Price and indexes (5%)  
14.1 Wholesale price, retail price, producers price  
14.2 Consumers Price Index (CPI)  
14.3 Agricultural Production Index  
14.4 Manufacturing Production Index  
14.5 Manufacturing Producers Price Index
15. Human development and poverty Statistics (5%)  
15.1 Latest HD status and poverty situation of Nepal  
15.2 Sustainable Development Goals  
15.3 Major sources of poverty statistics  
15.4 Poverty measuring practices in Nepal  
15.5 Nepal Living Standard Survey (NLSS)

---The End---

वस्तुगत बहुवैकल्पिक नमूना प्रश्नहरू(Sample questions)

1. If A and B are mutually exclusive events, then the  $\Pr(A \cap B)$  equals to  
(A) 1 (B) 0 (C) 0.5 (D)  $\Pr(A) \Pr(B)$

**Correct Answer: (B)**

2. The number of parameters in a bivariate normal distribution is  
(A) 2 (B) 4 (C) 5 (D) 3

**Correct Answer: (C)**

3. For any two positive real numbers a and b,  $\log(a + b)$  equals to  
(A)  $\log(a) + \log(b)$  (B)  $\log(a)\log(b)$  (C)  $\log(ab)$  (D) none of them

**Correct Answer: (D)**

4. The sum of square of the deviations is always minimum when they are measured from  
(A) arithmetic mean (B) median (C) mode (D) zero

**Correct Answer: (A)**

5. The value of multiple correlation coefficient always lies between the interval  
(A) [0, 1] (B) [-1, 1] (C) [-1, 0] (D) (0, 1)

**Correct Answer: (A)**

6. The maximum likelihood estimators are always  
(A) consistent (B) unbiased (C) biased (D) none of them

**Correct Answer: (D)**

7. The value of likelihood ratio test criterion lies between the interval  
(A) (0, 1), (B) (0, -1) (C) (-1, 1) (D) (-0.5, 0.5)

**Correct Answer: (A)**

8. The standard error of the sample mean always equals  
(A)  $\sigma^2$  (B)  $\frac{\sigma^2}{n}$  (C)  $\frac{\sigma}{\sqrt{n}}$  (D) none of them

**Correct Answer: (C)**

9. The value of autocorrelation always lies between the interval  
(A) [-1, 1] (B) [-1, 0] (C) [0, 1] (D) (-1, 1)

**Correct Answer: (A)**

10. If r and s correspondingly denote the exponential and geometric growth rates, then  
(A)  $r > s$  (B)  $r < s$  (C)  $r = s$  (D) none of them

**Correct Answer: (B)**

11. Consumption function describes the relationship between  
(A) income and consumption (B) saving and consumption  
(C) demand and consumption (D) none of them

**Correct Answer: (A)**

12. Human Poverty Index is measured on a scale of  
(A) 0 to 1 (B) 0 to 50 (C) 0 to 100 (D) 50 to 100

**Correct Answer: (C)**