



आधिकारिक पाठ्यक्रम 2025-26

OFFICIAL SYLLABUS 2025-26

Applied Mathematics

(व्यावहारिक गणित)

कोड: I-5075

कक्षा : बारहवीं / Class-12th

विषय का नाम Subject Name	कोड Code	अवधि अंक Duration/Marks	परीक्षा चक्र Exam Cycle
Applied Mathematics	I-5075	3 Hrs / 100 Marks	(On-Demand) , April And October
विषय सूची \ Table of Contents			
क्र.सं. Sr No.	विषय Topic	विवरण Details	
भाग 1: बुनियादी जानकारी Part :1 Basic Information			
1.1	सामान्य जानकारी General Information	विषय का नाम, कोड Subject Name, Code	
1.4	अंक वितरण सारांश Marks Distribution	100 अंकों का विभाजन Division of 100 Marks	
भाग - 2: पाठ्यक्रम का विवरण Part -2: Syllabus Details			
80 Marks			
2.1	पठन कौशल Reading Comprehension	20 Marks	

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2.2	लेखन कौशल और व्याकरण Writing Skills & Grammar	20 Marks
2.3	अनुप्रयुक्त हिंदी और अनुवाद (Applied Hindi & Translation)	20 Marks
2.4	साहित्य - समकालीन रचनाएँ (Contemporary Literature)	10 Marks
2.5	साहित्य - पूरक पाठ्यपुस्तक (Supplementary Literature)	10 Marks
भाग-3: शिक्षक अंकित असाइनमेंट Part-3: Tutor Marked Assignment		20 Marks

Learning Objectives (NEP 2020 Aligned)

Quantitative Reasoning: Developing data analysis skills and logical deduction.

Mathematical Modeling: Application of math to real-world problems and scenarios.

Statistical Thinking: Making informed decisions based on data analysis.

Optimization: Resource allocation and efficiency maximization strategies.

Computational Skills: Integration of technology for complex problem solving.

Financial Mathematics: Understanding business applications and financial models.

सिद्धांत पाठ्यक्रम विवरण / Detailed Theory Syllabus

80 Marks

Section A: Numbers, Quantification and Numerical Applications

(10 Marks)

- **Unit 1: Numbers, Quantification and Numerical Applications:**
 - **Modulo Arithmetic:** Properties, applications in cryptography.
 - **Matrices:** Types, operations, determinants, inverse, solving systems of linear equations.
 - **Linear Programming:** Formulation, graphical solution of linear programming problems.

Section B: Calculus

(44 Marks)

- **Unit 2: Calculus:**
 - **Limits and Continuity (10 marks):** Introduction to limits and continuity.
 - **Differentiation (16 marks):** Techniques of differentiation, derivatives of various functions.
 - **Applications of Derivatives (10 marks):** Rate of change, optimization problems, marginal cost and marginal revenue analysis.
 - **Integration (8 marks):** Basic integration, substitution method, definite integrals, area under simple curves.

Section C: Probability Distributions

(13 Marks)

- **Unit 3: Probability Distributions:**
 - **Probability Theory:** Random variables, Discrete and continuous probability distributions.
 - **Distributions:** Binomial Distribution, Poisson Distribution.
 - **Parameters:** Mean, variance, and standard deviation of distributions.

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Section D: Inferential Statistics	(13 Marks)
<ul style="list-style-type: none"> • Unit 4: Inferential Statistics: ○ Sampling: Population and sample, Sampling techniques. ○ Correlation: Karl Pearson's coefficient of correlation. ○ Regression: Lines of regression, prediction and forecasting. ○ Index Numbers: Construction of price and quantity indices, uses of index numbers. 	

आंतरिक मूल्यांकन / Internal Assessment	20 Marks
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1. Periodic Tests	(05 Marks)
<ul style="list-style-type: none"> • Average of the best two/three periodic tests • Assesses recall, understanding, and application 	
2. Multiple Assessments	(05 Marks)
<ul style="list-style-type: none"> • Quizzes, Oral Tests, Concept Maps • Assessment of Applied concepts 	
3. Practical Work / Project Work	(05 Marks)
<ul style="list-style-type: none"> • Data analysis, mathematical modelling • Record of project work in file 	
4. Portfolio	(05 Marks)
<ul style="list-style-type: none"> • Classwork, Journals, Achievements • Project work documentation, Self-assessment 	
Key Concepts & Skills	
<ul style="list-style-type: none"> • Concepts: Matrices, Calculus, Statistics • Skills: Data Analysis, Modeling • Application: Financial Math, Optimization • Analysis: Statistical Inference 	

प्रमुख अवधारणाएं और कौशल / Key Concepts & Skills

Applied Mathematical Concepts
<ul style="list-style-type: none"> • Arithmetic: Modulo arithmetic and cryptography. • Algebra: Matrix algebra and system solutions. • Optimization: Linear programming. • Calculus: Business and economics applications. • Statistics: Probability distributions, Inference, Correlation.
Practical Applications
<ul style="list-style-type: none"> • Decision Making: Business decision analysis. • Finance: Financial analysis and modeling. • Data Insights: Data-driven decision making. • Forecasting: Regression analysis and Index numbers.

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करियर के अवसर / Career Opportunities

Role	Typical Entry Income (Monthly)
Financial Analyst	₹25,000 - ₹75,000
Data Analyst	₹22,000 - ₹70,000
Business Analyst	₹25,000 - ₹80,000
Operations Research Analyst	₹28,000 - ₹75,000
Statistician	₹22,000 - ₹65,000
Market Research Analyst	₹20,000 - ₹60,000
Risk Analyst	₹26,000 - ₹70,000

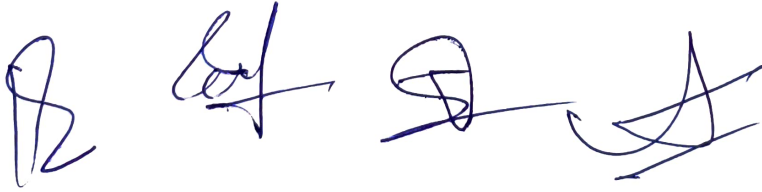
प्रश्नपत्र डिज़ाइन / Question Paper Design (Theory)

80 Marks

Section	Description	Marks Allocation
Section A	Numbers, Quantification and Numerical Applications	10 Marks
Section B	Calculus	44 Marks
Section C	Probability Distributions	13 Marks
Section D	Inferential Statistics	13 Marks
Total Theory:		80 Marks

अंक विश्लेषण / Marks Analysis

Component	Detail	Marks
Theory	Written Examination (Sections A, B, C, D)	80
TMA	Tests + Multiple Assessment + Project + Portfolio	20
Total		100



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