

IAT 2022 Analysis

Chapters	Topic	Difficulty level	Prediction	Type of prediction
Limits	Algebra of limits	easy	Predicted	Question in mock
Relations + coordinate	locus	moderate to difficult		
Complex numbers	Roots	moderate	Predicted	Question in mock
Coordinate geometry	Locus	moderate	Predicted	Question in mock
Matrices	Number of skew symmetric matrices	difficult	Predicted	Question in mock
Coordinate geometry	Intersection of curves	moderate		
Area of curves	Common area of multiple curves	moderate to difficult	Predicted	Class notes
Matrices	System of equations	moderate	Predicted	Question in mock
Application of derivatives	Monotonicity of a trigonometric function	moderate	Predicted	Question in mock
Probability	Classic probability	easy to moderate	Predicted	Class notes
Progression	Extrapolation using AP	moderate	Predicted	Question in mock
Basic maths	Inequality solving	easy to moderate	Predicted	Class notes
3-d geometry	Equation of plane	easy to moderate	Predicted	Class notes
Binomial theorem	Coefficient of x	Difficult	Predicted	Question in mock
Polynomials	Roots of a cubic poly.	moderate	Predicted	Question in mock

- More than 80% of the questions were predicted either through mock tests or the class teaching.
- Most questions were related to the basics of the chapters yet required you to have **in-depth knowledge** to solve them.
- Algebra has the biggest share in the paper (7-8 questions) followed by Calculus (3-4), and coordinate geometry (3).
- Many questions did not require lengthy calculations, but rather key concepts.
- Most questions were moderate.
- There are no questions from statistics or mathematical reasoning.
- For non-maths students, there are at least 2-3 questions that can be solved easily.

IMPORTANT TOPICS FOR IAT 2023

NOT TO MISS AT ANY COST	
Chapters	Topics
Basic maths	Logarithms, Graphs & transformations
Relations & functions	Number of relations, all about functions
Limits	Algebra, L Hopital, limits as integral
Matrices	Equations solving, other properties
Definite Integral	All techniques
Coordinate geometry	Straight lines, circles, parabola - locus
Vectors	triple products, geometric significance
Progression	Inequalities, series

<i>Do only if you have time topics</i>
Indefinite integral
Hyperbola
Binomial theorem
Complex numbers
Trigonometry - triangles

MOST IMPORTANT CHAPTERS & TOPICS for IAT 2023:

- 1. Relations:** very high chances for 1 question on topics- Reflexive, symmetric, transitive relations or counting these type of relations.
Also, can be merged with some other topics such as coordinate geometry.
- 2. Matrices: 1 question almost GUARANTEED.** On equation solving, polynomials, number of matrices
- 3. Coordinate geometry - 1 question on locus with some condition, intersection of curves**
- 4. Application of derivatives: 1 question almost GUARANTEED**
- 5. Quadratic equations: 1 question can come.** Location of roots, graphs are important.
- 6. Vectors:** 1 question, high chances. Vector equations, scalar triple product, vector triple product.
- 7. LIMITS: 1 Question GUARANTEED.** L'Hospital rule, infinity/infinity form, Newton Leibnitz formula.
- 8. Probability: 1 Question GUARANTEED.** Event Based Probability, Bayesian probability.
- 9. Trigonometry: 1 Question almost GUARANTEED.** From trigonometric series or equations.

NEST 2022 Analysis: Maths

Session 1

Session 1:			Prediction and mode
Chapters	Topics	Difficulty	
Basic maths	Basic geometry	Very easy	Predicted (mock, class)
Quadratic equations	Expression of roots	easy to moderate	Predicted (mock, class)
Probability	Conditional probability	easy to moderate	Predicted (mock, class)
Trigonometry	Series	moderate to difficult	Predicted (class)
Functions	Solution of equation	moderate	Predicted (mock, class)
Limits	L' Hopital	easy to moderate	Predicted (mock, class)
Functions	Pair solutions	moderate to difficult	
Basic maths	Minimizing a quantity (other methods are also used)	moderate to difficult	Predicted (mock, class)
Polynomials	Solutions using sets	difficult	Predicted (mock, class)
Euclidean geometry	Volume of a cone	easy to moderate	Predicted (mock, class)
Sets	Union, intersection,	moderate	Predicted (mock)
Permutation and combination	Together condition	moderate	Predicted (mock, class)
Application of derivatives	Condition of functions	moderate to difficult	Predicted (mock, class)
Matrices	Equation with Matrix variable	moderate	Predicted (mock, class)
Functions, number theory	increasing /decreasing	moderate to difficult	Predicted (mock, class)

Vectors	Triple product, sets	moderate to difficult	Predicted (mock)
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Session 2 Analysis:

Session 2:			Our Prediction
Chapters	Topics	No. of questions	
Circles	Common tangents	easy	Predicted (mock, class)
Basic maths/Number theory	Equation solving	moderate	Predicted (mock, class)
Probability	Classical probability	easy to moderate	Predicted (mock)
Trigonometry	Equation solving	easy to moderate	Predicted (mock, class)
Integration	leibniz	moderate to difficult	Predicted (mock)
Application of derivatives	Continuity of monotonic functions	moderate to difficult	Predicted (mock, class)
Cubic equations	Equation solving	easy to moderate	Predicted (mock, class)
Basic maths	With trigonometry	easy to moderate	Predicted (mock, class)
Binomial	Comparison of numbers	easy to moderate	Predicted (mock)
Relations	Equivalence classes	moderate to difficult	Predicted (class)
Straight lines	Intersection of lines	moderate	Predicted (mock, class)
Permutations	Restricted condition	moderate to difficult	Predicted (mock, class)
Continuity and differentiability	Continuity of function and derivative	moderate	Predicted (mock)
Matrices	Polynomial in matrix	moderate to difficult	Predicted (mock, class)

Sets	Finite and infinite sets	moderate to difficult	Predicted (mock, class)
Vectors	Triple product	moderate to difficult	Predicted (mock, class)
Complex numbers	n th roots of unity	moderate to difficult	Predicted (mock, class)

Important Chapters/topics for NEST 2023:

NOT TO MISS AT ANY COST	
Chapters	Topics
Quadratic Equation	graphs, location of roots
Matrices	matrix as a variable in polynomials
Straight lines	Locus, intersection
Functions	everything!
Limits	limits as integral,
Definite integral	main techniques
Vectors	triple products, geometric significance

CAN BE MISSED/Least Important
Chapters
Binomial theorem
Progression
Indefinite integral
Statistics
hyperbola

- Around 90 % of the questions are from the predicted chapters and topics either in **class or in mock tests or both**.
- So, if a student attempts all the mock tests diligently, they are bound to get an accurate idea of this kind of paper.
- Both sessions have around **5-6 easy questions** which should be solved by anyone.
- The number of moderate to difficult questions has increased in 2022 making the overall paper a bit challenging.
- However, after attempting our mocks, the questions should **look familiar**.
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- Session 2 is slightly more difficult than session 1 and might have taken a little longer to solve. (Reason - there are more lengthy questions in session 2)
- There were 2 - 3 difficult questions in both papers, which students are supposed to identify and not waste their time on.
- Students are encouraged to keep their focus on the important topics, questions from which are present in NEST **repeatedly**. They can easily fetch around **15 - 20 marks** from those topics.

MOST IMPORTANT CHAPTERS & TOPICS:

- 1. Relations:** very high chances for 1 question on topics- Reflexive, symmetric, transitive relations or counting these type of relations.
- 2. Function: 1 question GUARANTEED.** On analysis of graphs, ratio of functions, one-one & onto functions
- 3. Intersection of the curves & its analysis**
- 4. Continuity & differentiability: 1 question GUARANTEED**
- 5. Quadratic equations: 1 question GUARANTEED.** Location of roots, graphs are important.
- 6. Geometry:** analysis of a polygon, area of a region.
- 7. Vectors:** 1 question, high chances. Vector equations, scalar triple product, vector triple product.
- 8. LIMITS: 1 Question GUARANTEED.** L'Hospital rule, infinity/infinity form, Newton Leibnitz formula.
- 9. Matrix & Determinants: 1 Question GUARANTEED.** Questions can be a mix of matrix and determinant, matrix equations are important.

10. Divisibility: from binomial theorem, 1 question might come.

11. Coordinate Geometry: 1 question, high chances from locus.

12. Probability: 1 Question GUARANTEED. Event Based Probability, Bayesian probability.

13. Trigonometry: 1 Question almost GUARANTEED. From trigonometric series or equations.

