

# ONE-YEAR M.Sc IT ENTRANCE SYLLABUS (16 UNITS)

## UNIT 1: English Grammar & Vocabulary

Noun, Pronoun, Verbs, Tenses, Adjectives, Adverbs, Prepositions, Conjunctions, Clauses, Transformations, Synonym, Antonym, One-word substitutes, Idioms, Phrasal Verbs, Root words, Word games, Sentence types

## UNIT 2: English Comprehension & Verbal Reasoning

Comprehension, Composition, Fact–Inference–Judgment, Fill in blanks, Para Completion, Para Jumbles, Sentence Correction, Analogies, Reverse Analogies, Vocabulary-based Synonyms

## UNIT 3: Reasoning & Data Interpretation (Part-I)

Analogy, Classification, Series, Coding–Decoding, Blood Relations, Direction Sense, Venn Diagrams, Alphabet Test, Sitting Arrangements, Arithmetical Reasoning, Eligibility Test, Missing Character Test.

Data Interpretation: Bar Graph, Line Graph, Pie Chart, Caselets, Tables, Data Sufficiency

## UNIT 4: Analytical & Logical Reasoning (Part-II)

Syllogism, Statement–Assumption, Statement–Argument, Statement–Conclusion, Courses of Action, Assertion–Reason, Situation Reaction, Cause & Effect, Punch Lines, Binary Logic.

## UNIT 5: Quantitative Aptitude – Arithmetic

AP, GP, HP, Averages, Percentages, Profit & Loss, Ratio–Proportion, Partnership, Work–Time, Speed–Distance, Pipes–Cisterns, Instalments & Payments, BODMAS

## UNIT 6: Geometry, Mensuration & Algebra

Angles, Triangles, Circles, Quadrilaterals, Rectangles, Cones, Cubes, Spheres; Determinants, Matrices, Quadratic Equations, Expansion, Factorization, Indices, Logarithms

## UNIT 7: Coordinate Geometry & Transformations

Rectangular Cartesian System, Distance Formula, Midpoint, Intersections, Equations of Line, Circle, Parabola, Ellipse, Hyperbola, Translation, Scaling, Rotation

## UNIT 8: System Design & Project Management

DFD, ERD, System Architecture, Basics of Project Planning, Risk Management, SQA, SDLC Phases

## UNIT 9: Probability, Statistics & Set Theory

Probability Theory, Independent & Dependent Events, Distributions, Skewness, Kurtosis, Regression, Correlation, Curve Fitting, Least Squares, Sets, Relations, Functions, Calculus

## UNIT 10: Networks, Mobile Technologies & Data Communication

GSM, GPRS, 4G/5G, Mobile App Architecture, UI/UX basics; OSI, TCP/IP, Bandwidth, Channel Capacity, Signals, Transmission Media, Network Classification, Topologies

## UNIT 11: Computer Architecture, Logic Design & Web Basics

Binary number systems, Conversions, 1's & 2's complements, Boolean Algebra, Truth Tables, CPU Organization, Hardwired/ Microprogrammed CU, Instruction Formats, Addressing Modes, Cache, Virtual Memory.

Web: HTML, CSS, JavaScript, Responsive Design; Multimedia basics

### **UNIT 12: Programming, OS, DS, Algorithms & DBMS**

C/C++ fundamentals, Loops, Arrays, Functions, Pointers, Structures, OOP concepts, Operator Overloading, Virtual Functions; OS basics: processes, memory, I/O  
DS: stacks, queues, linked lists, trees, sorting, searching, Graph traversal  
DBMS: Relational algebra, Normalization, SQL, Transactions, Concurrency Control, File types, CASE tools

### **UNIT 13: Artificial Intelligence & Machine Learning Basics**

Introduction to AI, Rule-based systems, Problem-solving strategies, Supervised/Unsupervised learning, Linear Regression, Decision Trees, Evaluation Metrics

### **UNIT 14: Data Science, Big Data & Blockchain**

Data preprocessing, Visualization, Statistical concepts; Hadoop, MapReduce, Spark; Blockchain, Cryptocurrencies, Smart Contracts

### **UNIT 15: Quantum & Edge Computing**

Qubits, Quantum Algorithms, Edge computing concepts, IoT and AI applications

### **UNIT 16: Advanced Mobile & Network Technologies + Multimedia**

Android/iOS development concepts, network optimization basics, multimedia formats, video/image basics

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