[](https://www.gate.iitb.ac.in/index.php)

**GATE 2021**

* [GATE2021Website](https://www.gate.iitb.ac.in/index.php)
* [GATE2021 Information Brochure](https://drive.google.com/file/d/17uIFEXEgCX0DM2s0_z0ZdK5CucCdddn8/view)
* [GATE2021 DATES](https://www.gate.iitb.ac.in/impdate.php)

FAQ (BE CS Students) :

* Eligibility : NO age limit, NO attempt limit.
* 2 PAPERS : Any ONE or TWO.
  + Primary – CS (Compulsory : fees [female: 750/- , others: 1500/-])
  + Secondary – MA (Optional : fees [female: 750/- , others: 1500/-])
* Types or Questions
  + MCQ (1m or 2m : Negative Marking (deduction of 1/3rd of weighted marks)
  + MSQ (1m or 2m : NO Negative Marking)
  + NAT (1m or 2m : NO Negative Marking)
* [GA : General Aptitude (10Q’s [5Q’s 1m each & 5Q’s 2m each]=15m Compulsory Section) Click to check Syllabus of this sections.](https://drive.google.com/file/d/1DncG_JgZvPn0immT6Du-eoQdSmqokVU5/view)
* Subject ( CS / MA )
  + [CS Syllabus](https://drive.google.com/file/d/15m1czm6LIqRhskbqLPNvcfqY0ot_8ZdT/view)
  + [MA Syllabus](https://drive.google.com/file/d/1i6B27ipRNGPbEAsKZ35Y7V3r1V2vwAVQ/view)
* Paper1 CS :
  + GA Section (10Q’s Total 15M)
    - 5Q’s MCQ (1m each)
    - 5Q’s MCQ (2m each)
  + CS Section (55Q’s Total 85M)
    - 25Q’s : some MCQ some MSQ (1m each)
    - 15Q’s : some MCQ some MSQ (2m each)
    - 15Q’s NAT(2m each)
* Paper2 MA:
  + GA Section (10Q’s Total 15M)
    - 5Q’s MCQ (1m each)
    - 5Q’s MCQ (2m each)
  + MA Section (55Q’s Total 85M)
    - 25Q’s : some MCQ some MSQ (1m each)
    - 30Q’s : some MCQ some MSQ some NAT(1m or 2m each)
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* [List Of Examinations in Cities](https://www.gate.iitb.ac.in/exam_cities.php)
* Previous Year Papers
  + [GATE 2020 CS](https://drive.google.com/file/d/1aY4vbSqrBjJzYBahBq6dKBU3G5jWYiLX/view) && [Answer Key](https://drive.google.com/file/d/1EFhHXxyYCOC0XeAXKmtCQJZ2I6n9XREk/view) ;; [GATE 2020 MA](https://drive.google.com/file/d/1SxcXEkrOrnB2XmgrFPgWeQ07mngfbbcN/view) && [Answer Key](https://drive.google.com/file/d/11rTJdvHq_CJBgkY1zvDPsA_RJY-l8ZcD/view)
  + [GATE 2019 CS](https://drive.google.com/file/d/150P7u2AvVuafV7JI_eGB5YDOcpgwPl1s/view) && [Answer Key](https://drive.google.com/file/d/1VtB4NwlBAdX7QQnjYLGrXz39l1yxYnfv/view) ;; [GATE 2019 MA](https://drive.google.com/file/d/1OD_JRJfeefJGW_OxVWIDn5utyiYjA9Bl/view) && [Answer Key](https://drive.google.com/file/d/1Tt12l_6h3CZ25LI1wrBD0NohzP71CrjF/view)
  + [GATE 2018 CS](https://drive.google.com/file/d/1CboGjdOkvPzijQk8IXzsE6LdJst-xv9M/view) && [Answer Key](https://drive.google.com/file/d/1IqzR1oBuWFssrnPt7O61dxmKUQeT06gK/view) ;; [GATE 2018 MA](https://drive.google.com/file/d/1S2YVkgiUUgV5l4adTmF-WJHX_T2HmMx9/view) && [Answer Key](https://drive.google.com/file/d/1Fubeu1YHPAvR6FySzqhEBI4zGEdX9FKK/view)
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* CONTACT (Mon-Fri : 10AM-6PM): Chairperson, GATE Indian Institute of Technology Bombay, Powai, Mumbai 400 076 ; 022-25767068 ,022-25767022 ; gate2021 @ iitb.ac.in <https://www.linkedin.com/in/gate-jam-3104201a9/>

**GATE 2021 CS : Computer Science and Information Technology**

**PRIMARY PAPER : COMPULSORY**

**Marks : 100M total (15m:GA , 85m : CS)**

[**syllabus**](https://drive.google.com/file/d/15m1czm6LIqRhskbqLPNvcfqY0ot_8ZdT/view)

**GA : 15m**

**General Aptitude (15m)**

* **Verbal Aptitude**
  + - Basic English grammar: tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech
    - Basic vocabulary: words, idioms, and phrases in context
    - Reading and comprehension
    - Narrative sequencing
* **Quantitative Aptitude**
  + - Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables
    - Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series
    - Mensuration and geometry
    - Elementary statistics and probability
* **Analytical Aptitude**
  + - Logic: deduction and induction
    - Analogy
    - Numerical relations and reasoning
* **Spatial Aptitude**
  + - Transformation of shapes: translation, rotation, scaling, mirroring, assembling, and grouping
    - Paper folding, cutting, and patterns in 2 and 3 dimensions

**CS : 85m**

**General Mathematics (15m)**

* **Section1: Engineering Mathematics (15m)**
  + **Discrete Mathematics:**
    - Propositional and first order logic.
    - Sets, relations, functions, partial orders and lattices.
    - Monoids, Groups.
    - Graphs: connectivity, matching, coloring.
    - Combinatorics: counting, recurrence relations,generating functions.
  + **Linear Algebra:**
    - Matrices, determinants, system of linear equations, eigenvalues and eigenvectors, LUdecomposition.
  + **Calculus:**
    - Limits, continuity and differentiability. Maxima and minima. Mean value theorem.
    - Integration.
  + **Probability and Statistics:**
    - Random variables.
    - Uniform, normal, exponential, poisson and binomial distributions.
    - Mean, median, mode and standard deviation.
    - Conditional probability and Bayes theorem.

**Computer Science and Information Technology**

* **Section 2: Digital Logic** 
  + - Boolean algebra.
    - Combinational and sequential circuits. Minimization.
    - Number representations and computer arithmetic (fixed and floating point).
* **Section 3: Computer Organization and Architecture.**
  + - Machine instructions and addressing modes.
    - ALU, data‐path and control unit.
    - Instruction pipelining, pipeline hazards.
    - Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).
* **Section 4: Programming and Data Structures.**
  + - Programming in C.
    - Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.
* **Section 5: Algorithms.**
  + - Searching, sorting, hashing.
    - Asymptotic worst case time and space complexity.
    - Algorithm design techniques: greedy, dynamic programming and divide‐and‐conquer.
    - Graph traversals, minimum spanning trees, shortest paths.
* **Section 6: Theory of Computation.**
  + - Regular expressions and finite automata.
    - Context-free grammars and push-down automata.
    - Regular and context-free languages, pumping lemma.
    - Turing machines and undecidability.
* **Section 7: Compiler Design.**
  + - Lexical analysis, parsing, syntax-directed translation.
    - Runtime environments.
    - Intermediate code generation.
    - Local optimisation, Data flow analyses: constant propagation, liveness analysis, common subexpression elimination.
* **Section 8: Operating System**
  + - System calls, processes, threads, inter‐process communication, concurrency and synchronization.
    - Deadlock. CPU and I/O scheduling.
    - Memory management and virtual memory.
    - File systems.
* **Section 9: Databases**
  + - ER‐model.
    - Relational model: relational algebra, tuple calculus, SQL.
    - Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees).
    - Transactions and concurrency control.
* **Section 10: Computer Networks**
  + - Concept of layering: OSI and TCP/IP Protocol Stacks; Basics of packet, circuit and virtual circuit-switching;
    - Data link layer: framing, error detection, Medium Access Control, Ethernet bridging;
    - Routing protocols: shortest path, flooding, distance vector and link state routing;
    - Fragmentation and IP addressing, IPv4, CIDR notation,
    - Basics of IP support protocols (ARP, DHCP, ICMP), Network Address Translation (NAT);
    - Transport layer: flow control and congestion control, UDP, TCP, sockets;
    - Application layer protocols: DNS, SMTP, HTTP, FTP, Email.

NOTE:-