## https://drive.google.com/drive/folders/1SL-RYKdBkpOLg\_aElqQlDdPXSDmrhPcg?usp=sharing

Chapter-1 (Agorithms and Program Performance)  Designing and analysing algorithms. Time and Space complexity, Average and worst case Analysis, Asymptotic notations, recurrence equations and their solution substitution method, recursion-tree method, master method. Programs, Stacks, Queues, Prointers, Linked Lists (One -way, Tran-way and circular Two-way). Hashing, Trees (BST, B Tree, Editanced trees) (AVI, Red black trees)). Hasoa, Circulars  Chapter-3 (Review of Data Structures)  Annys, Stacks, Queues, Prointers, Linked Lists (One -way, Tran-way and circular Two-way). Hashing, Trees (BST, B Tree, Editanced trees) (AVI, Red black trees)). Hasoa, Circulars  Chapter-3 (Sorting algorithms)  Sorting in Inser time counting sort radix sort, bucket sort  LikeT-4 [IBN]  Chapter-4 (Shride and conquer & Greecy disporithms)  Design and conquer & Greecy disporithms.  Chapter-4 (Shride and conquer & Greecy disporithms)  Design and conquer & Greecy disporithms.  Chapter-4 (Shride and conquer & Greecy disporithms)  Design and conquer & Greecy disporithms.  Chapter-5 (Shride and conquer & Greecy disporithms)  Design and conquer in the general method, Fractional Knapsack problem, Minimum cost spanning tree. Prim's Algorithms, Knuster Algorithms, Hulfman coding, Optimal merge potterns.  Chapter-6 (Shride and conquer & Greecy disporithms)  The general method, Of Inospiack, Subset Sum problem, Charge making problem, optimal binary search tree. Matrix-chain Multiplication, Longest common Subsequence Problem. Travelling selesman problem. Comparise A conquer and Dynamic Inogramming techniques.  Chapter-6 (Shride and and Bound)  Dischardading The general method, N-cyelers problem, sum—of-subset, Hamiltonian cycles.  Bishorth and Bishnd Branch and Bound method Life proposal problem, Travelling selesperson problem.  LikeT-8 [Bish]  Chapter-9 (Greeph Algorithms)  Bagieseantesico of Graeph, Sporth Irist Search, Breachth First search, Topological sort, Single source shortest poth. Dijesto Algorithm & Belmon Ford Algorithm. All-por shortest
Chapter-1 (Algorithms and Program Performance)  Designing and analysing algorithms. Time and Space complexity, Average and worst case Analysis, Asymptotic notations, recurrence equations and their solutions substitution method, recursion-tree method, master method, master method, programs and analysing algorithms. Time and Space complexity, Average and worst case Analysis, Asymptotic notations, recurrence equations and their solutions substitution method, recursion-tree method, master method.  Arrays, Stocks, Queues, Prontiers, Linked Lists (One—way, Two—way and circular Two—way), <u>Hashing Trees</u> (851, 8 Tree, balanced <u>trees</u> (AM, Red black <u>trees</u> )). <u>Headers Space</u> Chapter-3 (Sorting algorithm)  Sorting in Innex time: counting sort, radix sort, <u>bucket sart</u> UNET-8 [16h]  Chapter-4 (Chride and coopure, & Greecy algorithme)  Notice and coopure. The General method, Enary search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort. Quick sort, Selection sort, Strasser's motils multiplication.  Orecely algorithms: The general method, fractional knapsics problem, Meirimum cost spanning tree: Prims Algorithm, Ensists Algorithm, Fulfman coding, Optimal merge patients.  Chapter-5 (Spaamic programmings)  The general method, of Irrapsack, Subset Sum problem, Change making problem, optimal binary search trees. Motils—chain Multiplication, Longest common Subsequence Problem, Travelling solesman problem. Comparis  & Computer of (Space), & Branch and Sound  Bookstracking & Branch and Sound method, (I) Knopsack problem, Travelling solesperson problem.  UNET-8 [8th]  Chapter-6 (Space), Depth First Search, Broodth First search, Topological sort, Single source shortest path; Dijestra Algorithm, All-port shortest paths. Floryl Warsholf Algorithm, Minimum Spansolithm algorithm.  Chapter-8 (Miscellaneous topics)  Bookstracking & Branch and Sound method, (I) Knopsack problem, Travelling solesperson problem.  Chapter-9 (Miscellaneous topics)
Designing and analysing algorithms. Time and Space complexity, Average and worst case Analysis, Asymptotic notations, recurrence equations and their solutions substitution method, recursion-tree method, master method.  Chapter 2 (Review of Data Structures)  Arrays, Stocks, Queues, Porteres, University Ulsts (One -way, Two-way and circular Two-way). Hashing Trees (BST, B Tree, Editanced trees (AVI, Red black trees)). Haspas, Grapts  Chapter 4 (Sorting algorithm)  Sorting in linear time: counting sort radis sort bucket and   UNIT-8 [th]  Chapter 4 (Chida and scorpus 6 Greedy algorithms)  Divide and scorpus 1 the General method. Binary search Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Cuck sort, Selection sort, Strassers marks multiplication.  Oneedy algorithms: The general method, Fractional Knapsock problem, Minimum cost spanning tree: Priors Algorithm, Knaskal Algorithm, Huffman coding, Optimal merge potterns.  Chapter 5 (Dynamic programming)  The general method, Of Irrapports, Subset Sum problem, Charge making problem, optimal binary search tree, Matris-chain Multiplication, Longest common Subsequence Problem, Travelling selesmon problem. Comparis & Comparer of Dynamic Programmings techniques.  Chapter 6 (Book tracking & Branch and Bound)  Backtracking & Branch and Bound method, Of Knapsock problem, Travelling selesperson problem.  UNIT-8 [th]  Chapter 7 (Grosph Algorithms)  Backtracking & Branch and Bound method, Of Knapsock problem, Travelling selesperson problem.  UNIT-8 [th]  Chapter 7 (Grosph Algorithms)  Backtracking & Branch and Bound method, Of Knapsock problem, Travelling selesperson problem.  UNIT-8 [th]  Chapter 6 (Computational complexity)  Basic concepts. P and NP-ciseses, proof NP-hard and NP-completeness.  Chapter 8 (Miscellaneous topica)  Euclid Algorithm for OCD 8/2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms. Blabin Karp algorithm, NAP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; Chinese remainder theore
Arrays, Stocks, Queues, Pointers, Linked Lists (One -way, Two-way and circular Two-way). Hashing Trees (BST, B Tree, balanced trees (AVI, Red black trees)). Hadde Graphs  Chapter-3 (forting algorithm)  Sorting in linear time: counting sort, radix sort, backet and
Arrays, Stocks, Queues, Pointers, Linked Lists (One -way, Two-way and circular Two-way). Hashing Trees (BST, B Tree, balanced trees (AVI, Red black trees)). Hadde Graphs  Chapter-3 (forting algorithm)  Sorting in linear time: counting sort, radix sort, backet and
Chapter-3 (Sorting algorithm) Sorting in linear time: counting sort, radix sort, bucket sort  UNET-8 [15h] Chapter-4 (Ohlde and conquer & Greedy algorithms)  Dudids and conquer the General method, Brany search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Quick sort, Selection sort, Strassen's matrix multiplication.  Chapter-5 (Dynamic programming)  The general method, Fractional Knapsock problem, Minimum cost spanning tree: Prim's Algorithm, Kruskal Algorithm: Hullman coding, Optimal merge patterns.  Chapter-5 (Dynamic programming)  The general method, of knapsock, Subset Sum problem. Change making problem, optimal binary search tree, Matris-chain Multiplication, Longest common Subsequence Problem. Travelling salesman problem. Comparis & Conquer and Dynamic Englanametrial techniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound Branch and Bound method, Of Knapsock problem, Travelling salesperson problem.  UNRT-8 [15h]  Chapter-7 (Graph Algorithms)  Representation of Geograp, Depth First Search, Broadth First search, Topological sort, Single source shortest path: Dijustra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Spansotins algorithm.  Chapter-6 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Krouth-Morris-Prott) algorithm, Boyer-Moore algorithm; Chipser-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modula arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Robin Karp algorithm, KMP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; C
Sorting in linear time: counting sort, radix sort, bucket sort  UNIT-8 [16h]  Chapter-4 (Ohide and songuer & Greedy algorithms)  Evides and songuer the General method, first yearch, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Quick sort, Selection sort, Strassen's matrix multiplication.  Greedy algorithms: The general method, Fractional Knopsack problem, Minimum cost spanning tree: Prim's Algorithm, Knuskal Algorithm; Hullman coding, Optimal merge patterns.  Chapter-6 (Oynamic programming)  The general method, 0/I knapsack, Subset Sum problem. Change making problem, optimal binary search tree, Matrix-chain Multiplication, Longest common Subsequence Problem, Travelling sofesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-6 (Bookstracking & Branch and Bound)  Backtracking: The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/I knopsack problem, Travelling sofesperson problem.  UNIT-8 [16h]  Chapter-7 (Graph Algorithms)  Begresentation of Graphs, Depth First Search, Broodth First search, Topological sort, Single source shortest path: Dijestra Algorithm & Belman Ford Algorithm, All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Sollins agarithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Robin Karp algorithm, KMP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; Country of the property of
Chapter-4 (Dhide and sconquer & Greedy algorithms)  Divide and conquer the General method. Binary search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Quick sort, Selection sort, Strassen's motifs multiplication.  Greedy algorithms: The general method. Fractional Knapsack problem, Minimum cost spanning tree: Prim's Algorithm, Kruskal Algorithm; Hulfman coding, Optimal merge patients.  Chapter-6 (Dynamic programming)  The general method. 0/I knapsack, Subset Sum problem. Change making problem, optimal binary search tree. Matris-chain Multiplication, Longest common Subsequence Problem, Travelling salesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-6 (Backtrocking & Branch and Bound)  Backtrocking The general method. 0/I knapsack problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method. 0/I Knapsack problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method. 0/I Knapsack problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method. 0/I Knapsack problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method. 0/I Knapsack problem, Travelling salesperson problem.  UNIT-II [ISh]  Chapter-7 (Graph Algorithms)  Representation of Organs. Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijestra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Spansolins algorithm.  Chapter-8 (Computational complexity)  Basic concepts, Pland NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; Country of the Country of th
Chapter-4 (Dhide and songuer 6 Greedy algorithms)  Divide and conquer. The General method, Binary search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Quick sort, Selection sort, Strassen's matrix multiplication.  Greedy algorithms: The general method, Fractional Knapsack problem, Minimum cost spanning tree: Prim's Algorithm, Kruskal Algorithm; Hulfman coding, Optimal merge patterns.  Chapter-6 (Dynamic programming)  The general method, 0/I knapsack, Subset Sum problem. Change making problem, optimal binary search tree, Matris-chain Multiplication, Langest common Subsequence Problem. Travelling salesman problem. Comparis & Conquer and Dynamic Programming sechniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking & Branch and Bound Bound)  Backtracking in general method, N-queer's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/I knapsack problem. Travelling salesperson problem.  UNIT-8 [18h]  Chapter-7 (Graph Algorithms)  Representation of Graphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Solins algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-8 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; Control of the Condition
Dicide and conquer: The General method, Binary search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort. Quick sort, Selection sort. Strassen's matrix multiplication.  Greedy algorithms: The general method, Practional Knapsack problem, Minimum cost spanning tree: Prim's Algorithm, Kruskal Algorithm; Hulfman coding, Optimal merge patterns.  Chapter-6 (Opnamic programming)  The general method, Of knapsack, Subset Sum problem, Change making problem, optimal binary search tree, Matrix-chain Multiplication, Longest common Subsequence Problem, Travelling salesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking: The general method, Ni-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, Of Knapsack problem. Travelling salesperson problem.  UNIT-8 [ISh]  Chapter-7 (Graph Algorithms)  Representation of Oraphs. Depth First Search, Breadth First search, Topological sort, Single source shortest paths Dijestra Algorithm & Belman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Sollins algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modula arithmetic, Chinese remainder theorem, string manipulation/matching algorithms. Robin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Conditions and provided and provided and provided algorithm. Boyer-Moore algorithm; Conditions algorithm for GCD of 2 numbers, modula arithmetic, Chinese remainder theorem, string manipulation/matching algorithms. Robin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Conditions algorithm for GCD of 2 numbers, modula arithmetic, Chinese remainder theorem, string manipulation/matching algorithms.
Chapter-8 (Cynamic programming)  The general method, 0/1 knapsack, Subset Sum problem, Change making problem, optimal binary search trea, Matris-chain Multiplication, Longest common Subsequence Problem, Travelling sofesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-8 (Backtracking & Branch and Bound)  Backtracking & Branch and Bound Branch and Bound method, 0/1 knapsack problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 knapsack problem, Travelling sofesperson problem.  UNIT-8 [15h]  Chapter-7 (Graph Algorithms)  Representation of Octophs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstro Algorithm & Bellman Ford Algorithm, All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Sollins algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Prott) algorithm, Boyer-Moore algorithm; Control of
The general method, 0/1 knapsack, Subset Sum problem, Change making problem, optimal binary search tree, Matris-chain Multiplication, Longest common Subsequence Problem, Travelling sclesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking & Branch and Bound, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 knapsack problem, Travelling sclesperson problem.  UNIT-II [ISh]  Chapter-7 (Graph Algorithms)  Representation of Graphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm, All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Solin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Robin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moore algorithm; Chapter-9 (Miscellaneous topics)
The general method, 0/1 knapsack, Subset Sum problem, Change making problem, optimal binary search tree, Matris-chain Multiplication, Longest common Subsequence Problem, Travelling sclesman problem. Comparis & Conquer and Dynamic Programming techniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking & Branch and Bound, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 knapsack problem, Travelling sclesperson problem.  UNIT-II [ISh]  Chapter-7 (Graph Algorithms)  Representation of Graphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm, All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Solin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Robin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moore algorithm; Chapter-9 (Miscellaneous topics)
& Conquer and Dynamic Programming techniques.  Chapter-6 (Backtracking & Branch and Bound)  Backtracking: The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 Knapsack problem, Travelling salesperson problem.  UNIT-II [15h]  Chapter-7 (Graph Algorithms)  Representation of Graphs. Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm. Minimum Span Solin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moore algorithm; C
Backtracking: The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 Knapsack problem, Travelling salesperson problem.  UNIT-IS  [15h]  Chapter-7 (Graph Algorithms)  Representation of Craphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijestra Algorithm & Bellman Ford Algorithm. All-pair shortest poths: Floyd Warshall Algorithm, Minimum Span Sollin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Complete algorithm, Complete algorithm, Complete algorithm, Boyer-Moore algorithm; Complete algorithm, Com
Backtracking: The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.  Branch and Bound: Branch and Bound method, 0/1 Knapsack problem, Travelling salesperson problem.  UNIT-IS  [15h]  Chapter-7 (Graph Algorithms)  Representation of Craphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijestra Algorithm & Bellman Ford Algorithm. All-pair shortest poths: Floyd Warshall Algorithm, Minimum Span Sollin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Complete algorithm, Complete algorithm, Complete algorithm, Boyer-Moore algorithm; Complete algorithm, Com
Branch and Bound: Branch and Bound method, 0/1 Knapsack problem, Travelling salesperson problem.  UNIT-II [16h]  Chapter-7 (Graph Algorithms)  Representation of Craphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Sollin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Completed algorithms algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Completed algorithms algorithm algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Completed algorithms algorithms algorithm algorithm algorithm algorithm.
Chapter-7 (Graph Algorithms)  Representation of Oraphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Sollins algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modula arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Chinese remainder theorem, string manipulation/matching algorithms.
Representation of Coophs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Span Solin's algorithm.  Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moore algorithm; Completeness.
Chapter-8 (Computational complexity)  Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moare algorithm; C
Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Country of the control
Basic concepts, P and NP-classes, proof of NP-hard and NP-completeness.  Chapter-9 (Miscellaneous topics)  Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Marris-Pratt) algorithm, Boyer-Moore algorithm; Country of the control
Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese remainder theorem, string manipulation/matching algorithms: Rabin Karp algorithm, KMP (Knuth-Morris-Pratt) algorithm, Boyer-Moore algorithm; C
Suggestive Readings:
1. Cormen, Leiserson, Rivest, Stein, "Introduction to Algorithms", Prentice Hall of India, 3 <sup>rd</sup> edition 2012, problem, Graph coloring. Free online version is also available.
UNIT-I [15h]
Chapter-1 (Algorithms and Program Performance)
Designing and analysing algorithms, Time and Space complexity, Averag
and worst case Analysis, Asymptotic notations, recurrence equations and
their solution: substitution method, recursion-tree method, master
method.
metriod.
Chapter-2 (Review of Data Structures)
Arrays, Stacks, Queues, Pointers, Linked Lists (One -way, Two-way and
circular Two-way), Hashing, Trees (BST, B Tree, balanced trees (AVL, Red
plack trees)), Heaps, Graphs
black trees)), Heaps, Graphs

Chapter-3 (Sorting algorithm)

Sorting in linear time: counting sort, radix sort, bucket sort

UNIT-II

[15h]

Chapter-4 (Divide and conquer & Greedy algorithms)

Divide and conquer: The General method, Binary search, Finding maximum and minimum of a sequence of numbers, 2 way Merge sort, Quick sort, Selection sort, Strassen's matrix multiplication.

Greedy algorithms: The general method, Fractional Knapsack problem, Minimum cost spanning tree: Prim's Algorithm, Kruskal Algorithm; Huffman coding, Optimal merge patterns.

## Chapter-5 (Dynamic programming)

The general method, 0/1 knapsack, Subset Sum problem, Change making problem, optimal binary search tree, Matrix-chain Multiplication, Longest common Subsequence Problem, Travelling salesman problem.

Comparison of Divide & Conquer and Dynamic Programming techniques.

Chapter-6 (Backtracking & Branch and Bound)

Backtracking: The general method, N-queen's problem, sum-of-subsets, Hamiltonian cycles.

Branch and Bound: Branch and Bound method, 0/1 Knapsack problem, Travelling salesperson problem.

UNIT-III [15h]

Chapter-7 (Graph Algorithms)

Representation of Graphs, Depth First Search, Breadth First search, Topological sort, Single source shortest path: Dijkstra Algorithm & Bellman Ford Algorithm. All-pair shortest paths: Floyd Warshall Algorithm, Minimum Spanning Tree: Sollin's algorithm.

Chapter-8 (Computational complexity)

Basic concepts, P and NP-classes, proof of NP-hard and NPcompleteness.

Chapter-9 (Miscellaneous topics)

Euclid Algorithm for GCD of 2 numbers, modulo arithmetic, Chinese

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