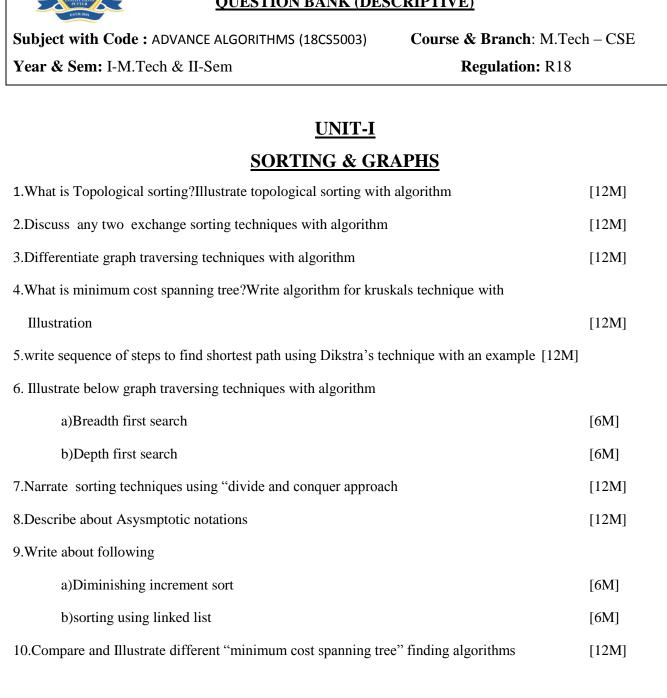
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QUESTION BANK 2019





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QUESTION BANK (DESCRIPTIVE)

<u>UNIT-II</u>

MATROIDS & GRAPH MATCHING

1.What is matroid?Illustrate any two greedy algorithm techniques	[12M]
2.Write algorithm to compute maximum weight and minimal independent set	[12M]
3.Illustrate prims technique with algorithm	[12M]
4.Write an algorithm to find out maximum matching in graphs	[12M]
5. What is augmenting path? How it is computed with Edmonds Blossom Algorithm	[12M]
6.Narrate few applications of spanning trees with example	[12M]
7.write about following	
a)warshall's technique	[6M]
b)Graph colouring problem	[6M]
8.Narrate following in detail	
a)Huffman coding and compression	[6M]
b)Travelling sales person problem	[6M]
9.Illustrate any three graph applications with algorithms	[12M]
10.Discuss the difference between following	
a)Chromatic numbers in scheduling	[6M]
b)Directed acyclic graphs in planning activities	[6M]

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<u>UNIT – III</u>

FLOW NETWORKS & MATRIX

a)Maxflow-mincut theorem	[6M]	
b)Ford-Fulkerson Method	[6M]	
2.Narrate Edmond-Karp maximum-flow algorithm	[12M]	
3.Illustrate strassen's algorithm with an example.	[12M]	
4.Expalin how you use "divide and conquer" in matrix computations	[12M]	
5.Describe the relation between time complexities of basic matrix operations	[12M]	
6.Illustarate LUP-Decomposition in detail	[12M]	
7.Differentiate following techniques		
a)maximum flows and minimum cuts in a graph	[6M]	
b)Max flow equals min cut	[6M]	
8.Narrate following in nut shell		
a)pre-flow push maximum algorithm	[6M]	
b)Bipatite matching problem	[6M]	
9.Discuss in detail about "Airlines scheduling" algorithm		[12M]
10.Pictorially narrate below techniques		
a)Image segmentation	[6M]	
b)Base ball elimination	[6M]	

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$\underline{UNIT - IV}$

GRAPHS & DFT

1.Explain How to find out path matrix with warshall algorithm	[12M]
2.Differentiate Floyd and warshall algorithms	[12M]
3.Write algorithms for following	
a)Travelling sales person problem	[6M]
b)Towers of Hanoi	[6M]
4.Explain interpolation problem in detail	[12M]
5.Narrate conversion between Base and Modulo Representation	[12M]
6.Narrate Schonhage-Strassen Integer Multiplication algorithm	[12M]
7.Explain following	
a)Chinese Reminder Theorem	[6M]
b)Fast Fourier theorem	[6M]
8.Compare and contrast following	
a) The FFT using bit operations	[6M]
b) Products of polynomials	[6M]
9.Illustrate polynomial multiplication and division algorithms	[12M]
10.Define finite Automata? Discuss Chinese remaindering and interpolation	
of polynomials	[12M]

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$\underline{UNIT} - \underline{V}$

LINEAR PROGRAMMING

1.Illustrate Geometry of the feasibility region and Simplex algorithm	[12M]
2. Describe proof of NP-hardness and NP-completeness	[12M]
3.Discuss any Randomized algorithms	[12M]
4. Explain any 2 Approximation algorithms	[12M]
5.Write in detail about Interior point Method	[12M]
6.Illustarte advanced number theoretic Algorithm	[12M]
7.Describe following	
a) Polynomial-space-bounded problems	[6M]
b) Nondeterministic Turing machines	[6M]
8.Differentiate following	
a)row-oriented lower bound on multiplications b)column-oriented lower bound on multiplications	[6M] [6M]
9.Narrate how we can implement Dictionaries randomly with algorithm	[12M]
10.Copare "Randomized catching" and "chernoff bounds" in detail	[12M]

Prepared by: **D.SAINATH**