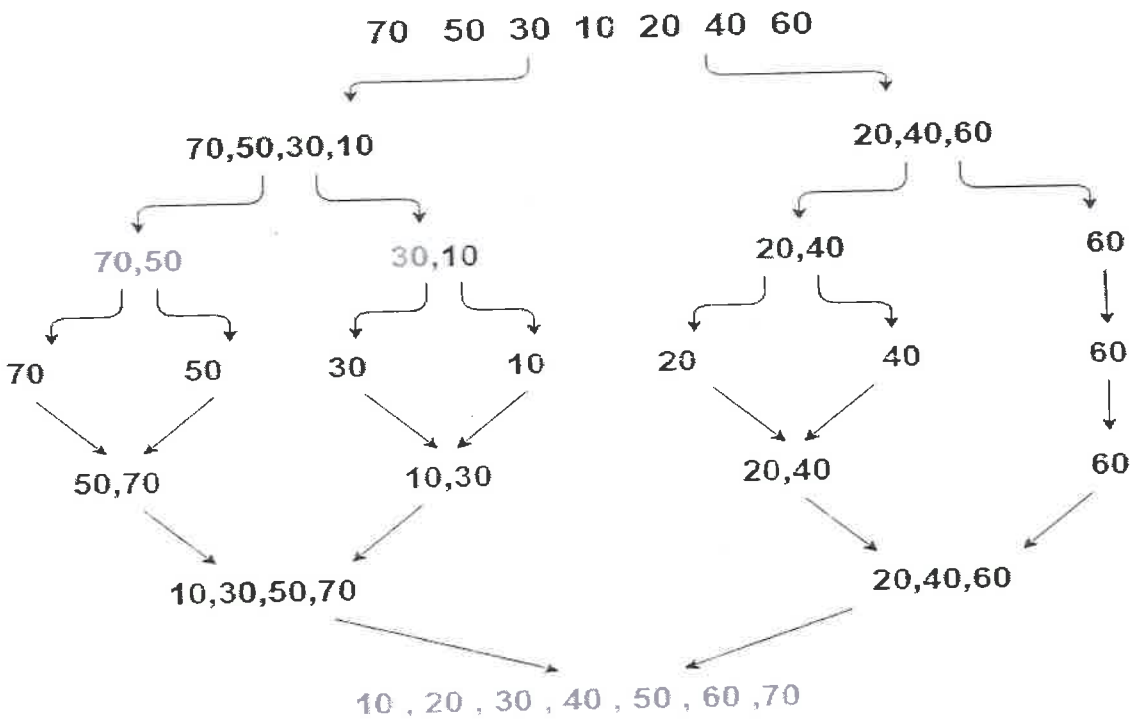
38902

Paper Solution
Subject /Paper Code: 38902 / ANALYSIS OF ALGORITHM
(CBSGS)
Department of Computer Engineering

Q1. (a)



Q3. (a)
Let us consider that the capacity of the knapsack ***W* = 60** and the list of provided items are shown in the following table –

Item	A	B	C	D
Profit	280	100	120	120
Weight	40	10	20	24
Ratio $(\frac{p_{i}}{w_{i}})$	7	10	6	5

As the provided items are not sorted based on $\mathbf{\frac{p_{i}}{w_{i}}}$. After sorting, the items are as shown in the following table.

Item	B	A	C	D
Profit	100	280	120	120
Weight	10	40	20	24
Ratio $(\frac{p_{i}}{w_{i}})$	10	7	6	5

After sorting all the items according to $\frac{p_{i}}{w_{i}}$. First all of ***B*** is chosen as weight of ***B*** is less than the capacity of the knapsack. Next, item ***A*** is chosen, as the available capacity of the knapsack is greater than the weight of ***A***. Now, ***C*** is chosen as the next item.

However, the whole item cannot be chosen as the remaining capacity of the knapsack is less than the weight of ***C***.

Hence, fraction of ***C*** (i.e. (60 − 50)/20) is chosen.

Now, the capacity of the Knapsack is equal to the selected items. Hence, no more item can be selected.

The total weight of the selected items is **10 + 40 + 20 * (10/20) = 60**

And the total profit is **100 + 280 + 120 * (10/20) = 380 + 60 = 440**

Q3. (b)

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The Set: {10, 7, 5, 18, 12, 20, 15}
The sum Value: 35
Output: All possible subsets of the given set, where sum of each element for
every subsets is same as the given sum value.
{10,  7,  18}
{10,  5,  20}
{5,  18,  12}
{20,  15}
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Q5. (a)

		0	1	2	3	4 =*n*
			B	D	C	B
0		0	0	0	0	0
1	B	0	1	1	1	1
2	A	0	1	1	1	1
3	C	0	1	1	2	2
4	D	0	1	2	2	2
m= 5	B	0	1	2	2	3

X = BACDB

Y = BDCB

LCS = BCB

		0	1	2	3	4 =*n*
			B	D	C	B
0		0	0	0	0	0
1	B	0	1	1	1	1
2	A	0	1	1	1	1
3	C	0	1	1	2	2
4	D	0	1	2	2	2
m= 5	B	0	1	2	2	3

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Q5. (b)