

LAB-6

Question-1

Ques 1

28, 50, 10, 21, 18, 18, 25, 3, 10, 2, 58, 16, 68

58, 10, 88, 15, 58, 21, 86, 70, 3, 10, 2, 58, 16

88, 10, 88, 15, 58, 21, 86, 70, 3, 10, 2, 58, 16

58, 10, 88, 15, 58, 21, 86, 70, 3, 10, 2, 58, 16

68, 10, 88, 15, 58, 21, 86, 70, 3, 10, 2, 58, 16

3, 23, 53, 81

15

31

66

85

15, 31, 66, 85

15, 31, 66, 85

15, 31, 66, 85

15, 31, 66, 85

15, 31, 66, 85

15, 31, 66, 85

15, 31, 66, 85

7

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

9, 33, 64, 83

Question 2

BFS: 47, 5, 70, 3, 23, 53, 81, 15, 31, 66,
9, 33, 64, 83, 7

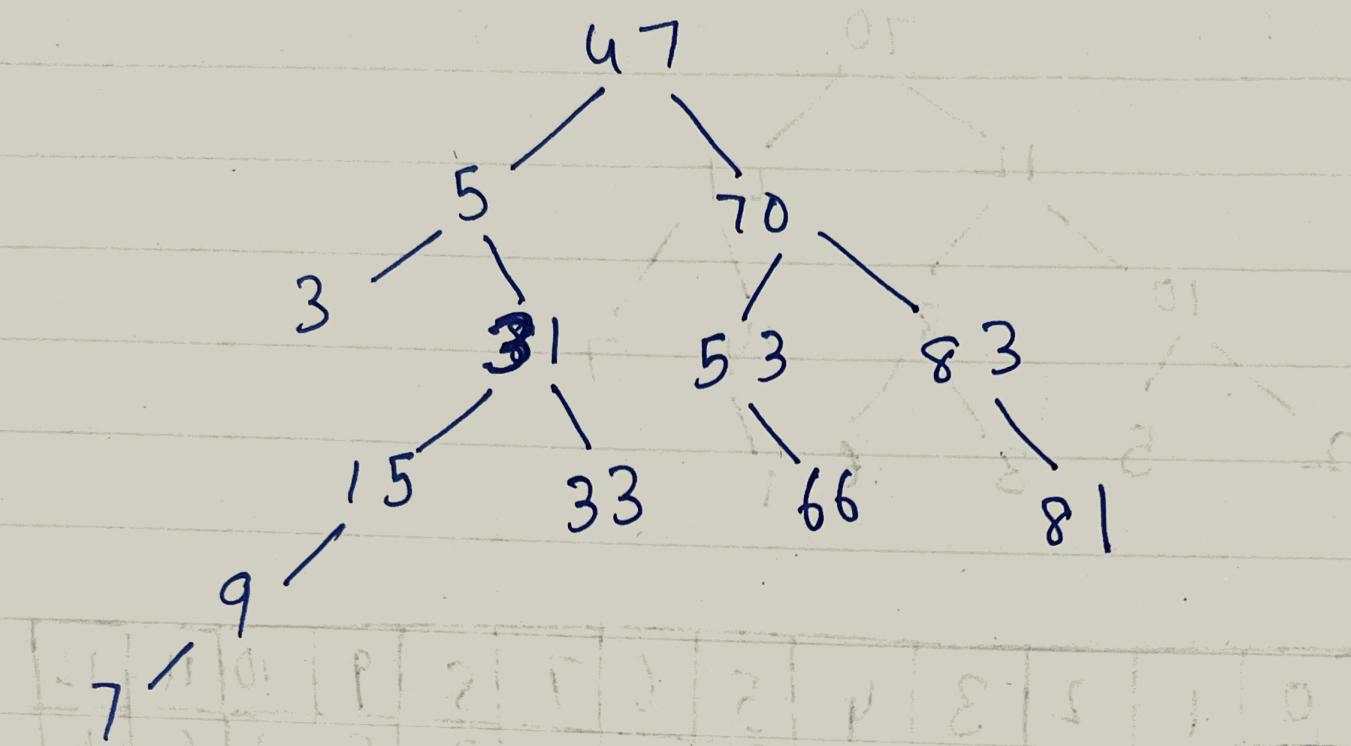
FN

Preorder: 47, 5, 3, 23, 15, 9, 7, 31, 33, 70,
66, 64, 181, 85, 83

inorder: 3, 5, 7, 9, 15, 23, 31, 33, 47, 53, 64,
70, 81, 83, 85

Post order: 3, 7, 9, 15, 33, 31, 23, 5, 64, 66, 53, 8
81, 70, 47

Question 3



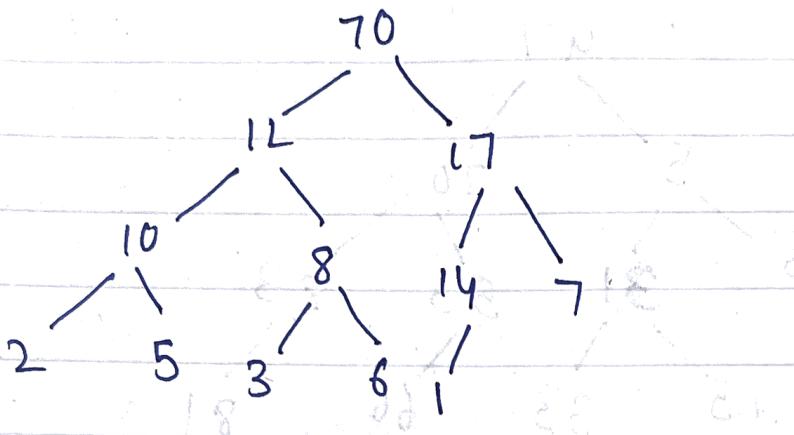
64 => delete directly

23 => Swapped with 31

81 => Swapped with 83

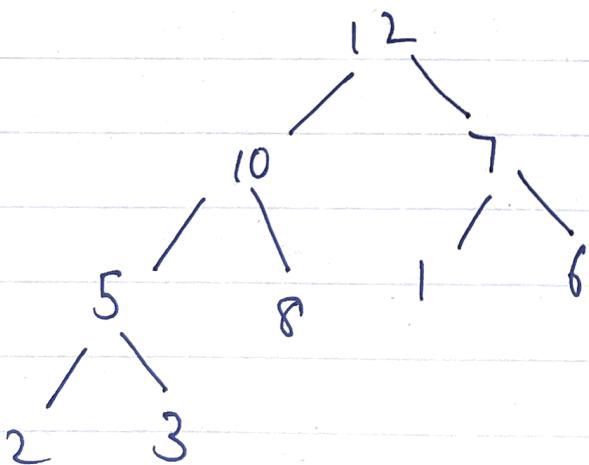
Question 4

Answer



0	1	2	3	4	5	6	7	8	9	10	11	12
70	12	17	10	8	14	7	2	5	3	6	1	18

After deleting 23 times:

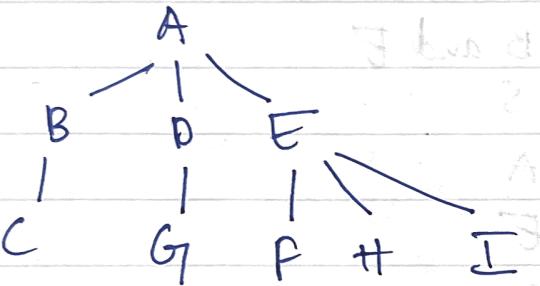


+ practice

Question 5

BFS:

A, B, D, E, C, G, F, H, I



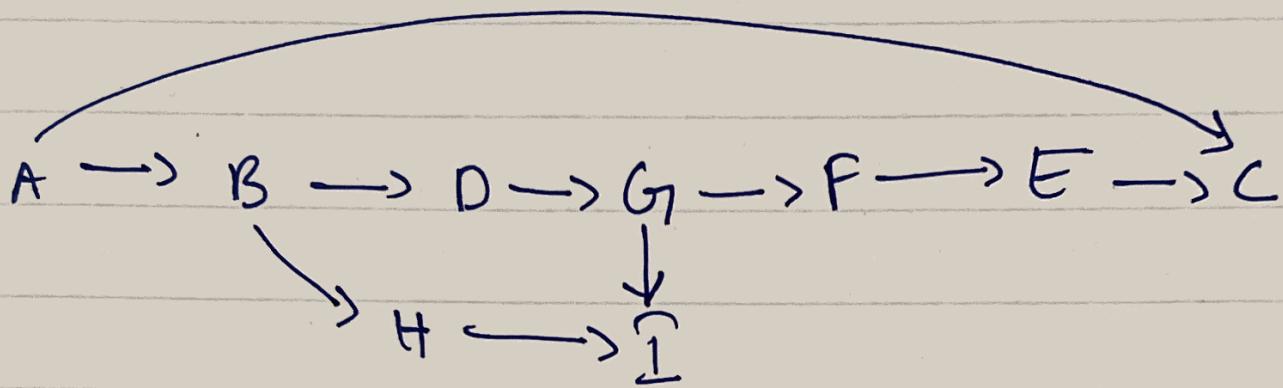
DFS:

A, B, C, E, D, G, H, I, F

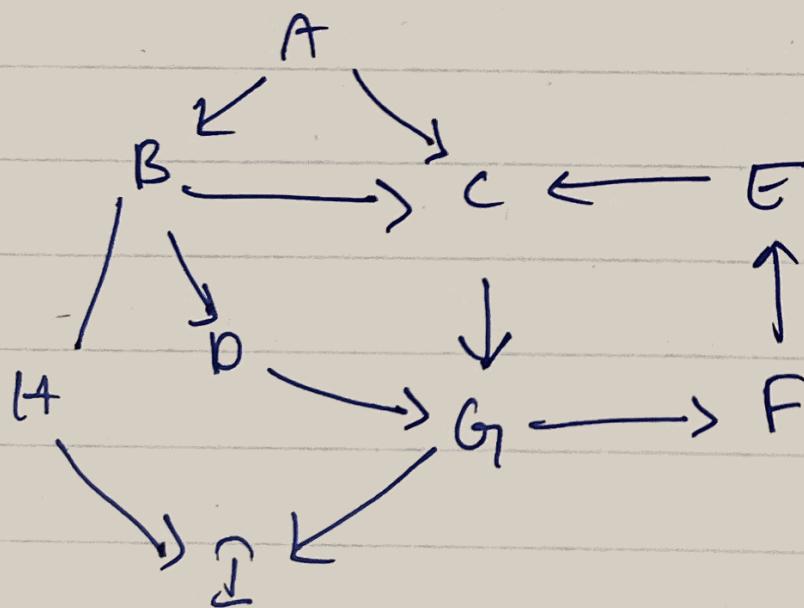


Question 6!

a)



b)



final order

A B C G F E I D H

Question 7

S	0	
A	1	1, 4, 7, 10, 12, 15, 18, 21, 24, 27, 30
B	3	A
C	5	B and E
D	4	S
E	3	A
F	6	E
G	6	S
H	6	E
I	12	H
t	9	C, F

there are three shortest paths with the same cost = 9

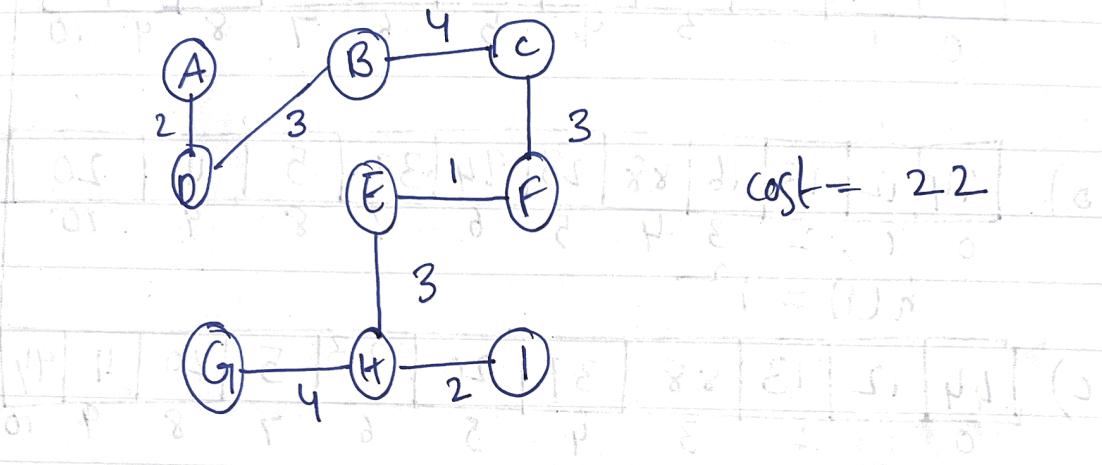
$$S \rightarrow A \rightarrow E \rightarrow F \rightarrow t$$

$$S \rightarrow A \rightarrow B \rightarrow C \rightarrow t$$

$$S \rightarrow A \rightarrow E \rightarrow C \rightarrow t$$

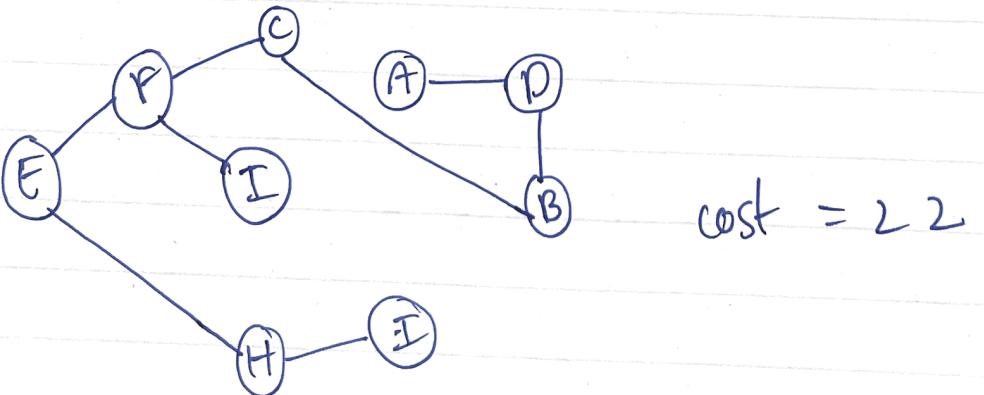
Question 8

Prim's Algorithm on Web Grid (a)



Kruskal's Algorithm

E-F	A-D	H-I	B-D	C-F	G-H	B-G	F-S	G-H	A-B	B-E	B-F	D-L	D-H
1	2	2	3	3	3	4	4	4	5	5	6	6	7



Question 9

Q

a) hash table : no collision

13	94	39	16	5	44	88	11	12	23	20
0	1	2	3	4	5	6	7	8	9	10

44	12	13	16	88	23	94	39	5	11	20
0	1	2	3	4	5	6	7	8	9	10

$$h(i) = i^2$$

44	12	13	88	39	20	23	5	20	11	94
0	1	2	3	4	5	6	7	8	9	10

no collision