Problem 1 :

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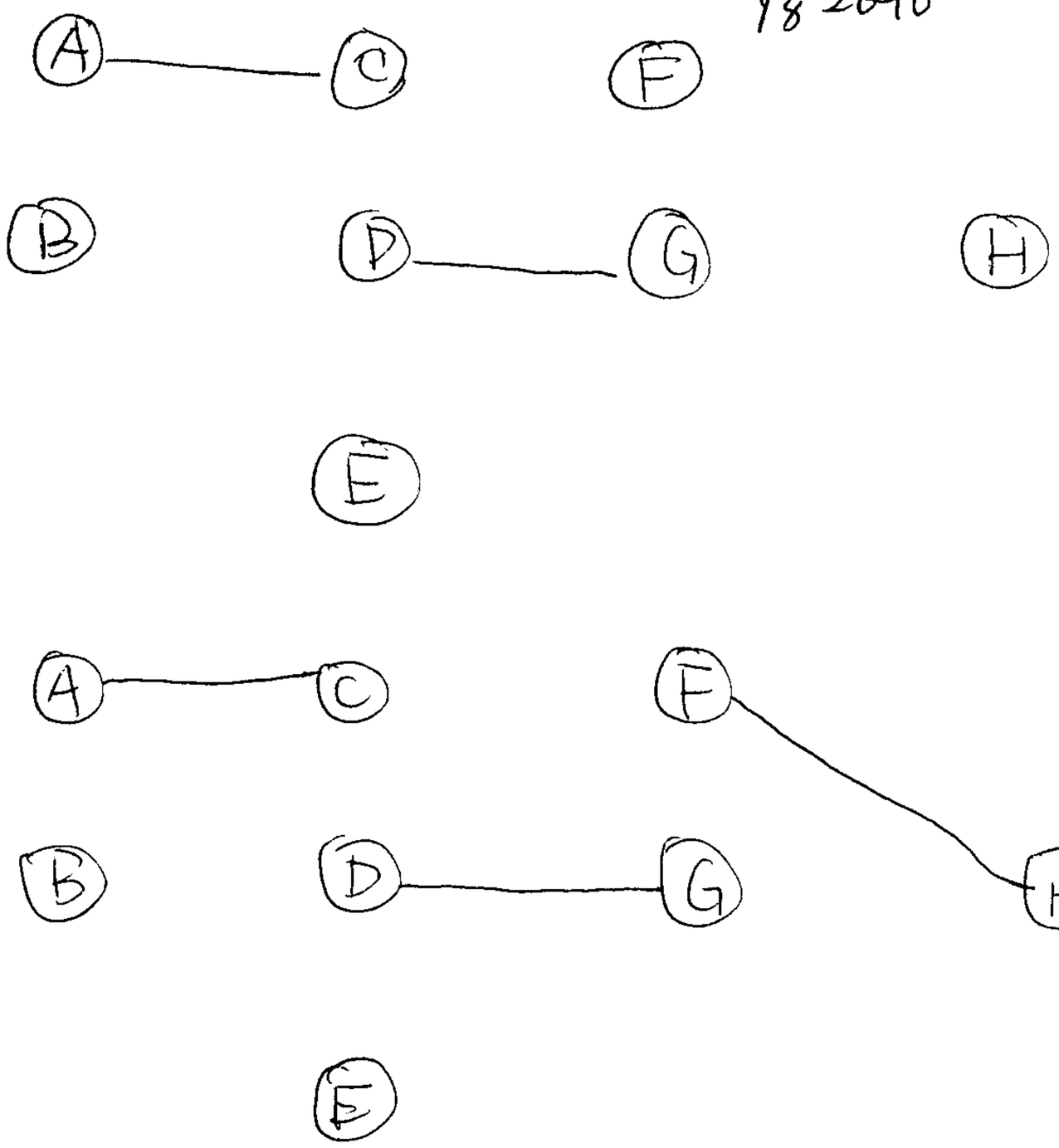
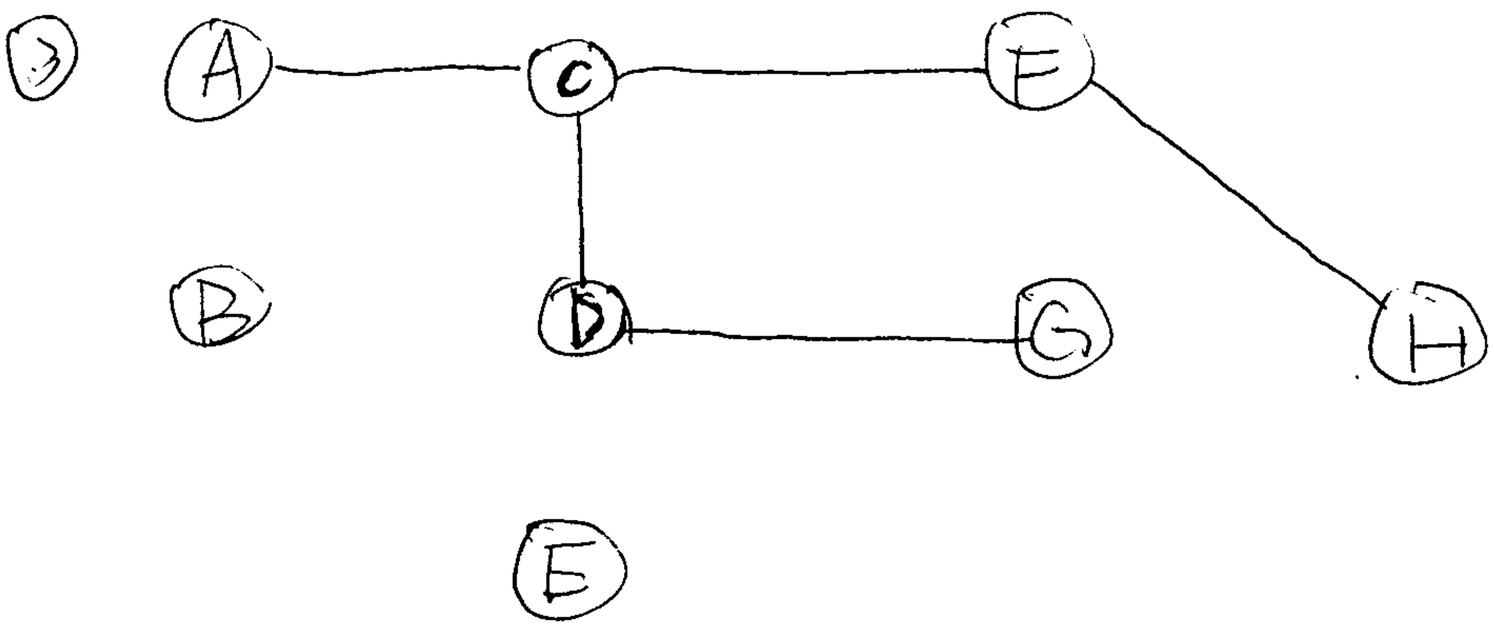
①



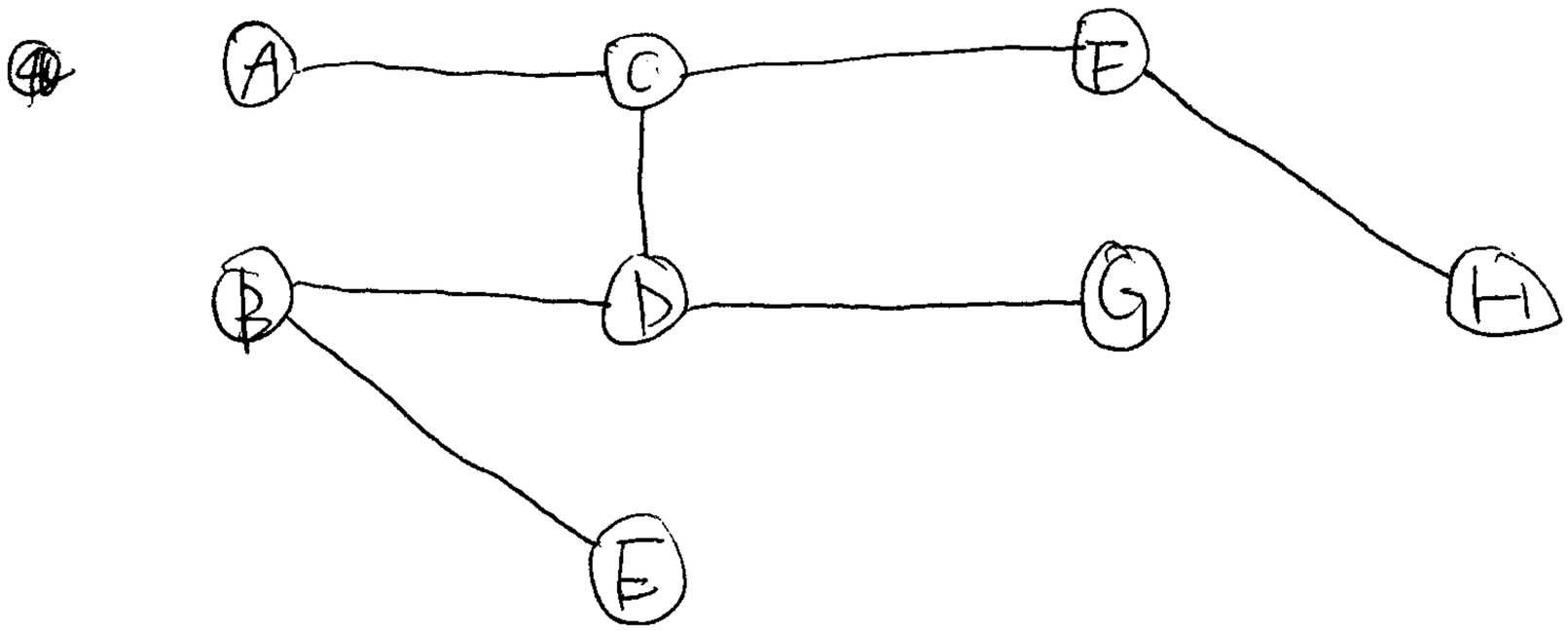
AC	2	✓
DG	2	✓
DE	3	✓
FH	5	✓
CF	7	✓
CD	7	✓
BE	8	✓
FG	8	Reject
CG	9	Reject
BD	10	✓

②

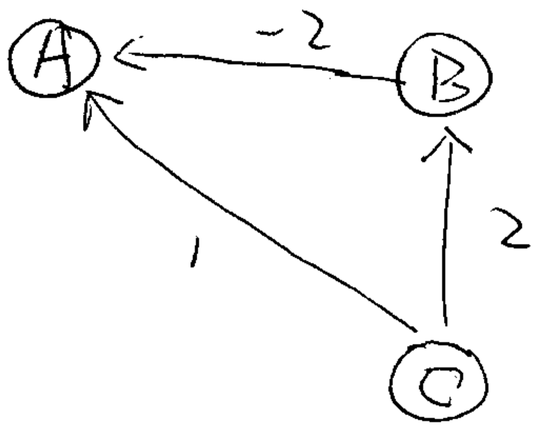
③



④



Problem 2



We start search at C, and ~~the~~ A would be the first node to be visited. So the ~~dist~~ minimum ~~distance~~ path of C→A would be 1 in the output. However, the true minimum path is C→B→A = 0.

Problem 3

Bipartite ⟺ No edges ~~at~~ at the same layer in BFS

Because in BFS, we can ~~see~~ take all odd number layer to be one partite and even number layers to be another partite.

Do BFS first, keep track the layer of each node, check every edge to make sure there is no edge in the same layer. BFS is O(|V|+|E|) and checking every edge is O(|E|), so the whole algorithm is O(|V|+|E|).