1. mincost flow with upper and lower flow bounds. $O(mincost - flow(n, n^2))$.
2. This is the minimum cost edge cover problem for bipartite graph (with non-negative weights), which can be reduced to minimum cost bipartite perfect matching.
https://cstheory.stackexchange.com/questions/14690/reducing-a-minimum-cost-edge-cover-problem-to-minimum-cost-weighted-bipartie-per
$O(n^3)$ using KM, or $\tilde{O}(m^{10/7} \log W)$ [1].

References

[1] Michael B Cohen, Aleksander Madry, Piotr Sankowski, and Adrian Vladu. Negative-weight shortest paths and unit capacity minimum cost flow in $\tilde{O}(m^{10/7} \log W)$ time. In *Proceedings of the Twenty-Eighth Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 752–771. SIAM, 2017.