1) Please provide mechanism for the following reactions



Angew. Chem. Int. Ed. 2022, e202208427
2) Please provide mechanism for the following reaction

3) Please provide mechanism for the following reaction

4) Please provide missing compounds, provide reaction conditions for the transformation of $\mathbf{1}$ to $\mathbf{2}$ and propose a mechanism in the formation of $\mathbf{7}$ and 18.

J. Am. Chem. Soc. 2022, 144, 10640

