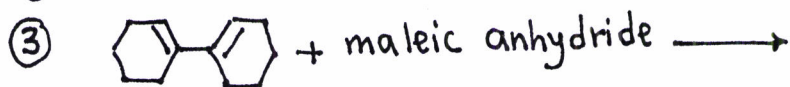
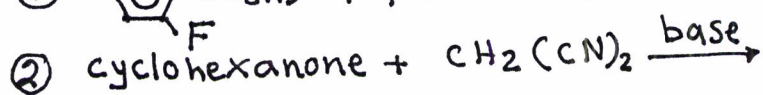
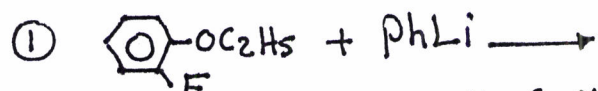


(2015-2016) Ph.D. Competitive Exam. in Organic Chemistry

Q₁ Write the products of the following equations:



Q₂ a- Explain the reason:

① Reaction of cyclohexene with KMnO4 gives only the cis-diol.

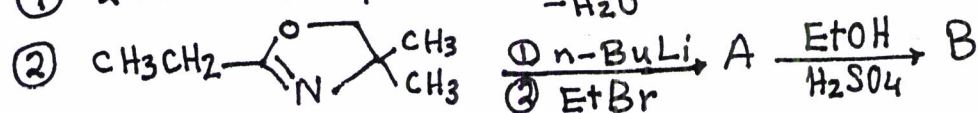
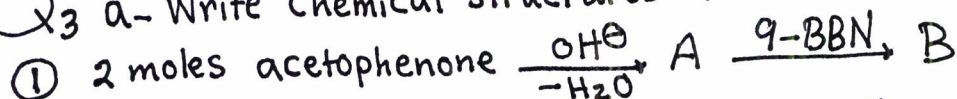
② 1,3-dihydroxy pentane doesn't oxidize with HIO4.

b- Write equations that represent the followings:

① Nucleophilic substitution reaction performed by S_N1 Mechanism.

② Wittig Reaction

Q₃ a- Write chemical structures of A and B in the following reactions:



b- How can you distinguish by one chemical test between p-Toluidine and N-methyl aniline? (with equations).

Q₄ Write chemical structures of Reagents R_1 - R_3 that are used in performing these reactions:

