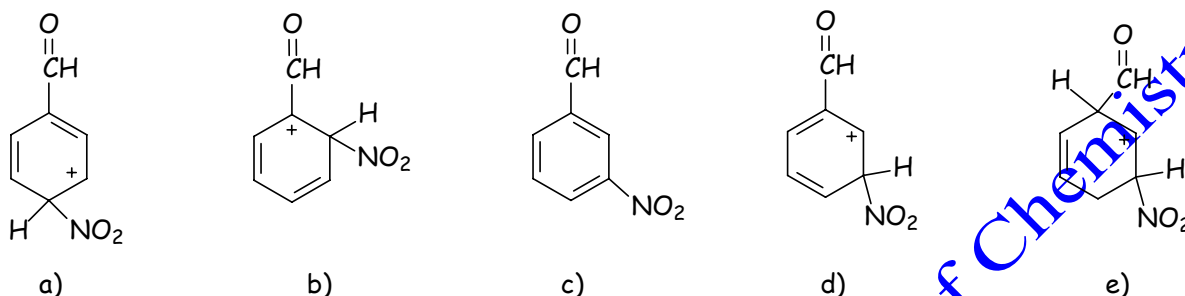




- When 3-iodo-3-ethylpentane is reacted with methanol, the major organic product is an ----- that is generated through ----- mechanism.  
 a) alkene, E2    b) alcohol, E1    c) ether, S<sub>N</sub>1    d) ether, S<sub>N</sub>2    e) ether, E1

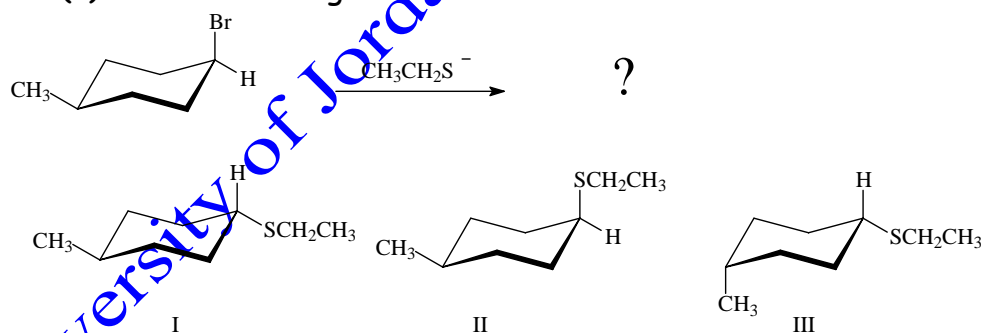
- The intermediate in the nitration of benzaldehyde is



- The slowest step of an S<sub>N</sub>1 reaction involves:

- combination of a nucleophile with the carbocation to give the product.
- attack of the nucleophile on the substrate.
- loss of a proton from the nucleophile to give the product.
- breaking the bond between the carbon and the leaving group to give a carbocation.

- The product(s) of the following reaction is

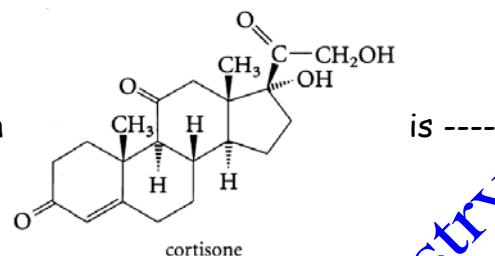


- I only
- II only
- III only
- equal amounts of I and III
- equal amounts of II and III

- Which of the following is not correct representation of relative nucleophile strength?
- HO<sup>-</sup> > HS<sup>-</sup>
  - NH<sub>2</sub><sup>-</sup> > F<sup>-</sup>
  - I<sup>-</sup> > Br<sup>-</sup>
  - CH<sub>3</sub><sup>-</sup> > HO<sup>-</sup>
  - CH<sub>3</sub>O<sup>-</sup> > CH<sub>3</sub>OH

II. Complete the following:

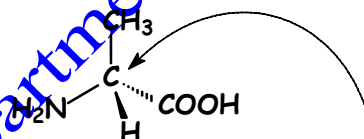
▲ The number of stereogenic centers are present in



is ----

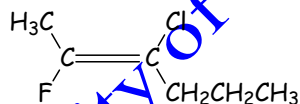
▲ Consider the reaction of  $(\text{CH}_3)_3\text{CBr}$  and  $\text{H}_2\text{O}$ . Will the reaction rate .....  
(increases, decreases, not affected) when the concentration of  $\text{H}_2\text{O}$  increases.

▲ Write the configuration of the indicated atom



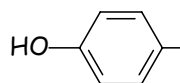
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▲ The Name of



is .....

▲ The Name of

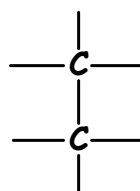
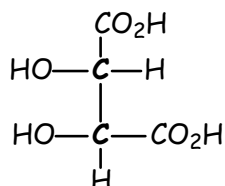


is .....

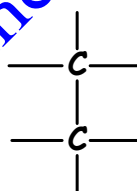
III. Give the structure of each of the following:

▲ The transition state of the  $S_N2$  reaction of  $CH_3CH_2Br$  with  $OH^-$

▲ a diastereomer of

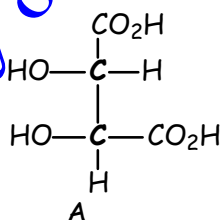


▲ 2,3-dibromobutane which is optically inactive



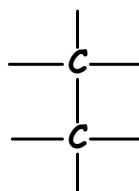
▲ polar aprotic solvent .....

▲ Stereoisomer of A



which has a specific rotation equal to

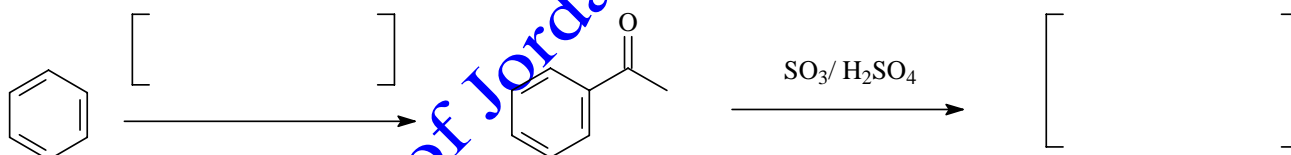
that of A, but of opposite sign:



IV. Complete the following equation, indicate the stereochemistry:



V. Starting from benzene, how could you prepare the following compound



**GOOD LUCK**