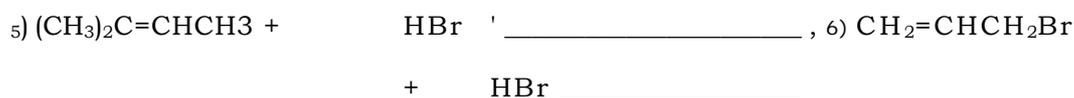
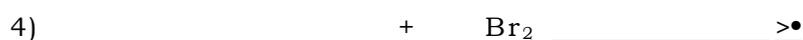


B. Complete the following equations and give the symbol or words (S_N1 , S_N2 , S_N2' , S_Ni , $E1$, $E2$, $E1cB$, Markovnikov addition or anti-Markovnikov addition) most consistent with each one:



C. 1) Write the mechanism of the following: a- S_N1 reaction
 b- Reaction of CH_4 with Cl_2 in presence of light

2) Arrange the following compounds in a decreasing order of reactivity through S_N2 reaction:



Question No. 3 (22 Pts)

A. Draw the structures of the following compounds a) Two enantiomers of tartaric acid.

b) R & S Lactic acid.

c) A meso isomer of 1,3-dimethylcyclopentane.

d) Newman projection of ethane.

B. Define the following.

a) Stereogenic center. b) Axial chirality.

c) Conformational isomers. d) Diastereomers.

C. Comment on the following.

a) Geometrical and optical isomers of 3-methylcyclohexanol. b) Draw D- & L-glyceraldehyde.

c) Regiospecific reaction.

d) Optical activity of 2-butanol is $+13.5^\circ$

e) The most stable conformers of 1,2-dimethylcyclohexane