1 Explain by mechanism why Five-membered heterocycles with one heteroatom undergo electrophilic substitution reactions at C-2 and C-3 and which one is more stable (C-2 Or C-3 )?

2- What is a ylide ? What are the different types of ylides?

**3-What are the best reagents to prepare 3-ethyl-2-pentene via Wittig reaction?**

**4- Arrange the following carbocations with reason in order of stability**?



***5-*Predict the product for each reaction below.-**



**2-**





**3-**







6- Which factor affects the stability of carbanion? With example.



7- Which of the protons identified in the following pairs is most acidic ?

*8-* Write the mechanism for the following reactions ?

**A- In base Catalysis.**





**B-**

