Answer on Question#72937 – Chemistry – Organic chemistry

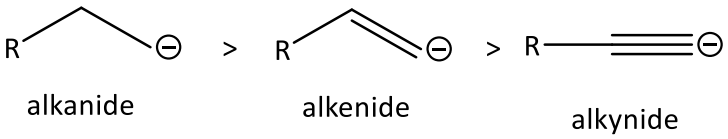
Question:

Arrange the following in the decreasing order of their basic strength

Alkaline anion, alkenide anion, alkenide anion.

Answer:

Basic strength of the anions decreases in the row:



alkanide alkenide alkynide

Alkynide anion contains lone pairs of electrons on the sp orbital, alkenide – on sp^2 and alkanide – on sp^3.

The negative charge of anions is the most stabilized on sp orbital, because the sp orbital is the smallest. Therefore, alkynide anion is the weakest base. The sp^3 orbital is the biggest orbital and alkanide anion is the least stabilized, therefore alkanide ion is the strongest base. The alkenide ion is between them.