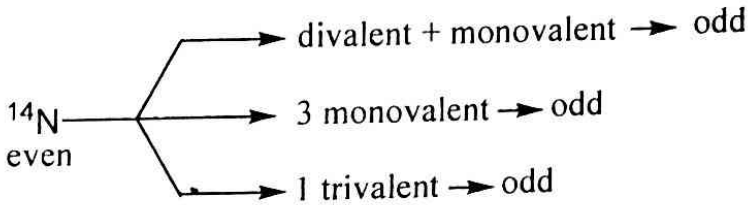
NITROGEN RULE

- Monovalent mass odd
- Divalent mass even
- Trivalent mass should odd → only N is a trivalent having odd mass.
- Tetravalent mass even.

Three possibilities are possible, with N.



EFFECT OF 'N' RULE :

1. If 'N' atom is absent in molecule then
   all radical cation = even mass
   all cations = odd mass.

Problem: A molecule containing Carbon, Hydrogen & Oxygen has mole. wt 120. In mass spectrums peaks at 120, 100, 105, 76, 59, 43. Find out the even e^- and odd e^- species among these.
OR, Classify as radical cation, cation, EES and OES.

Soln.

Radical cation	120, 100, 76
Cation	105, 59, 43
EES	105, 59, 43
OES	120, 100, 76

EEs → even electron species.
OEs → Odd electron species.

2. **If one 'N' atom present in molecule then**
   Two type of fragments are
   (a) having N atom in each fragment
   odd mass species = radical cation
   even mass species = cations
   (b) having not 'N' atom in the species.
   odd mass species = cation
   even mass species = radical cation