

### Answer 7.5c)

c) Enumerate the processes of ion formation upon EC and write down the corresponding equations.

When a neutral molecule interacts with an electron of thermal energy, EC can occur. There are three mechanisms of ion formation by EC: *Resonance electron capture* directly yields the negative molecular ion,  $M^{-\bullet}$ , whereas even-electron fragment ions are formed by *dissociative electron capture* and *ion-pair formation*. Molecular ions are generated by capture of electrons with 0–2 eV kinetic energy, whereas fragment ions are generated by capture of electrons from 0 to 15 eV. Ion-pair formation tends to occur when electron energies exceed 10 eV.

