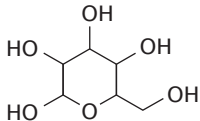
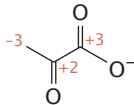
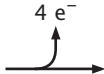


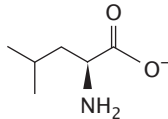
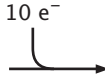
tracing electron transfers in organic reactions



glucose
 $N_c = 6, Z_c = 0$



2 pyruvate
 $N_c = 3, Z_c = +2/3$



leucine
 $N_c = 6, Z_c = -1$