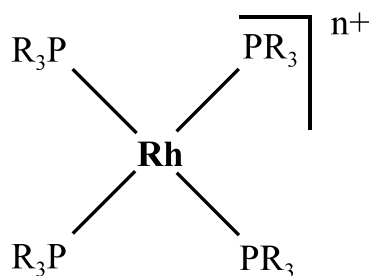


T7 Practice problems (Refer to pages C83-C86 in the online manual)

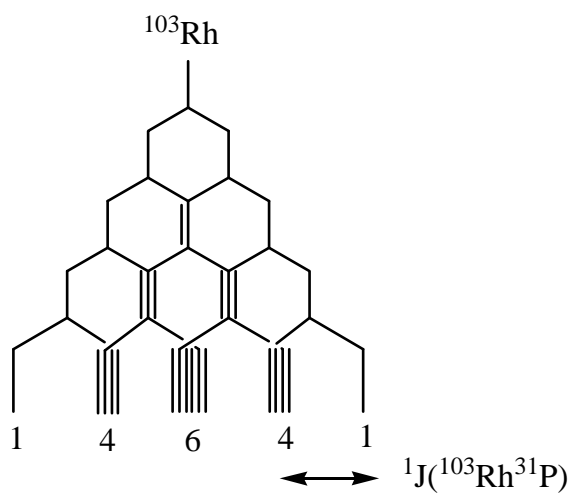
1. Generate the $^{31}\text{P}\{^1\text{H}\}$ and $^{103}\text{Rh}\{^1\text{H}\}$ for:



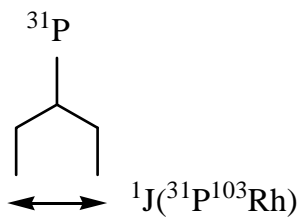
remember:

^{31}P ($I = 1/2$), 100%
 ^{103}Rh ($I = 1/2$), 100%

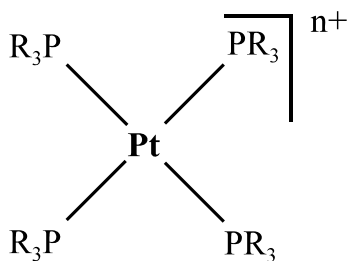
Predict the $^{103}\text{Rh}\{^1\text{H}\}$ nmr



Predict the $^{31}\text{P}\{^1\text{H}\}$ nmr



2. Generate the $^{31}\text{P}\{^1\text{H}\}$ and $^{195}\text{Pt}\{^1\text{H}\}$ for:



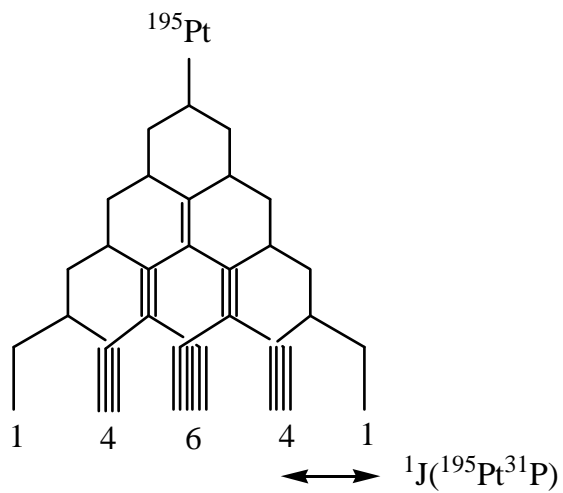
remember:

^{31}P ($I = 1/2$), 100%

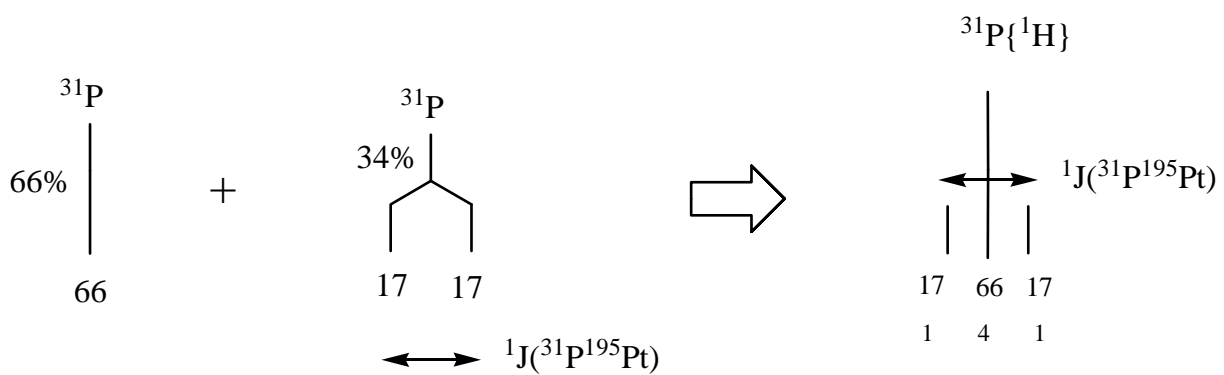
^{195}Pt ($I = 1/2$), 34%

other ^{195}Pt ($I = 0$), 66%

Predict the $^{195}\text{Pt}\{^1\text{H}\}$ nmr



Predict the $^{31}\text{P}\{^1\text{H}\}$ nmr



3. Generate the $^{14}\text{N}\{^1\text{H}\}$ and $^{109}\text{Ag}\{^1\text{H}\}$ for:



remember:

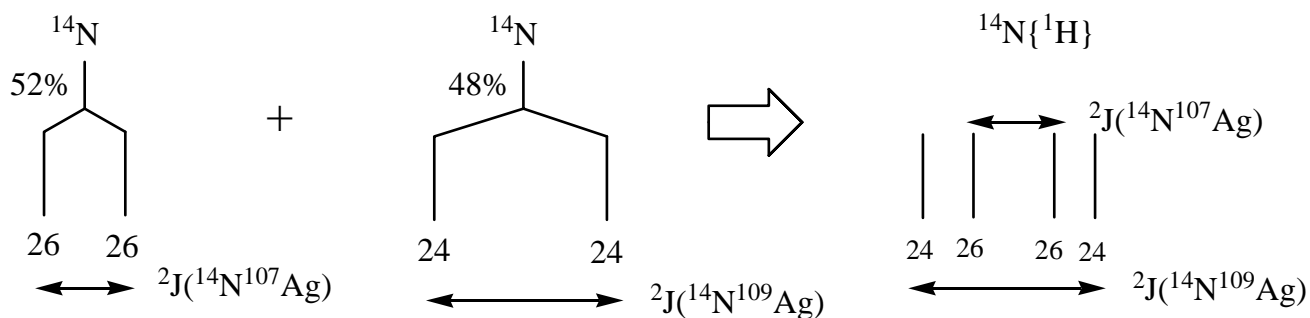
^{14}N ($I = 1$), 99.63%

^{15}N ($I = 1/2$), 0.37%

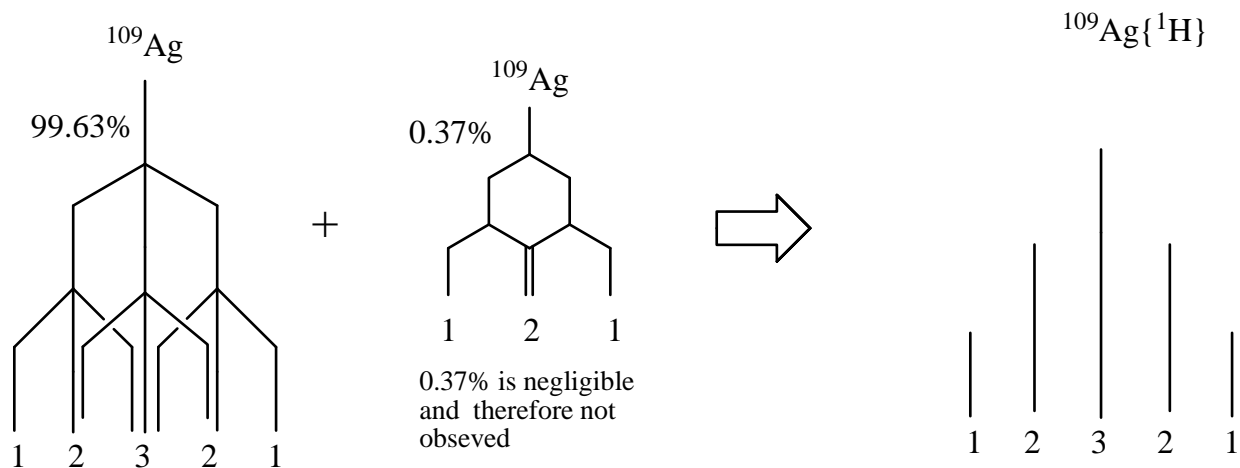
^{107}Ag ($I = 1/2$), 52%

^{109}Ag ($I = 1/2$), 48%

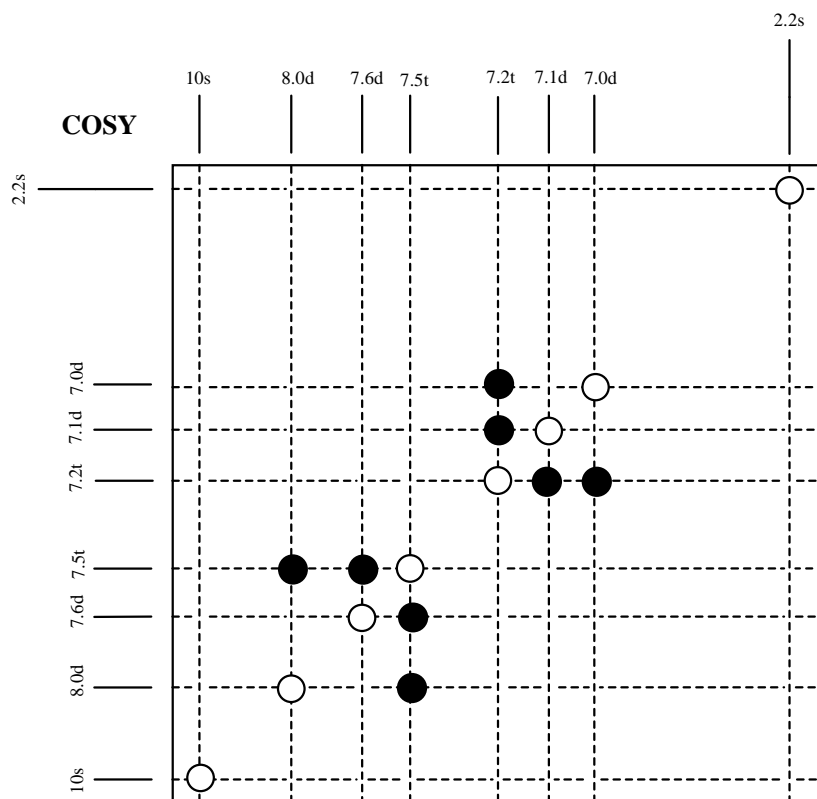
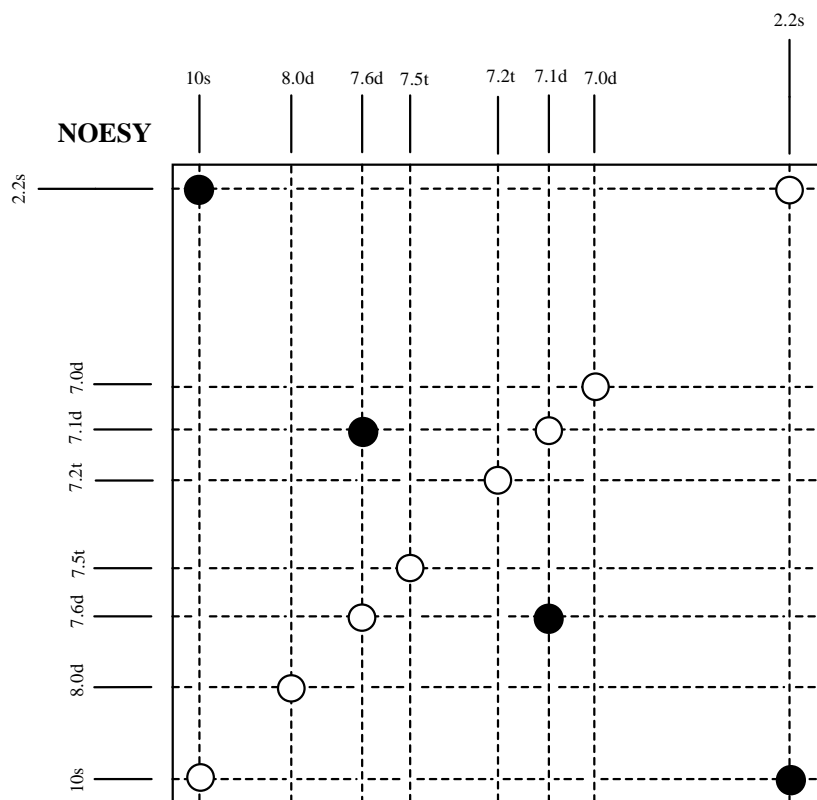
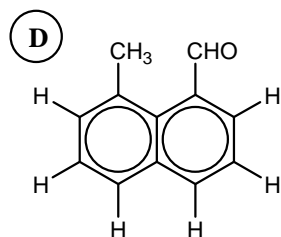
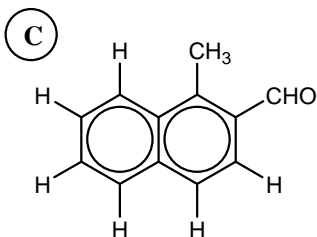
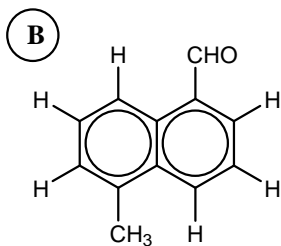
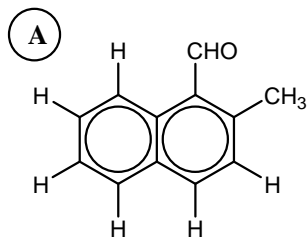
Predict the $^{14}\text{N}\{^1\text{H}\}$ nmr



Predict the $^{109}\text{Ag}\{^1\text{H}\}$ nmr



4. Which of the following molecules generate the NOESY and COSY shown?
 (chemical shifts are approximate; multiplicity is given and each signal is shown as a line; integration of short lines is 1 and tall lines is 3)



NOESY shows δ 10 s (CHO) must be spatially crowding the δ 2.2 s (CH_3) so it must be D.