Answer 13: Carbocation and Aromaticity

13-1 $(CH_3)_3C^+ \ SbF_6^-$

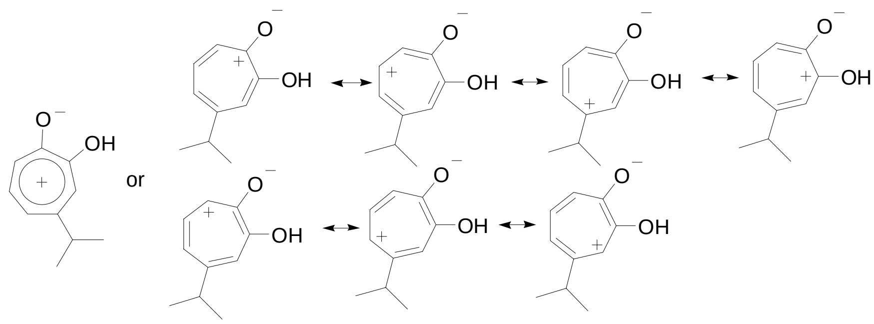
13-2 Spectrum I: $(CH_3)_3CF$ in SbF_5

13-3 6 π electrons

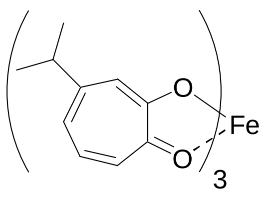
13-4 yes

13-5 (a) A singlet at δ 9.17

13-6



13-7 **D**

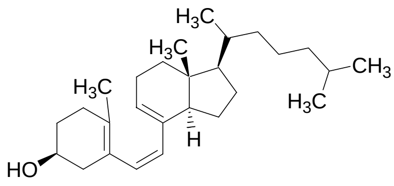


Answer 14: Photochemical Ring Closure and Opening

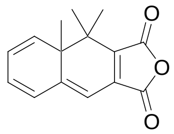
14-1 (2*E*,4*Z*,6*Z*)-octatriene

14-2 **E**

14-3 **F**



14-4 **I**



14-5 No.

Answer 15: Stereochemistry

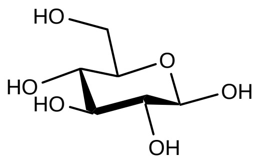
15-1 (*2S,3S*)

15-2 **X**= CH_3, **Y** = PPh_2

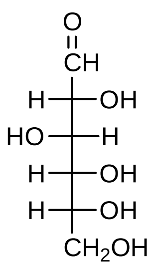
15-3 36%

15-4 β

15-5



15-6



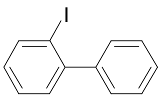
15-7 none

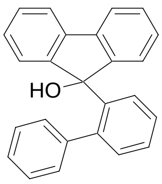
15-8 99:1

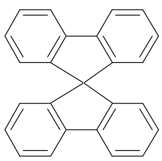
15-9 0

Answer 16: Organic Synthesis

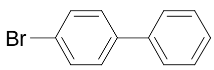
16-1

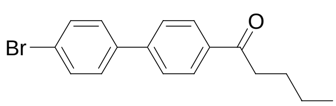
A = 

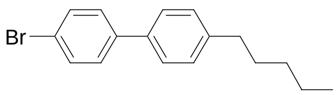
B = 

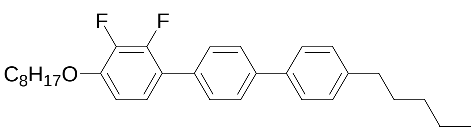
C = 

16-2

D = 

E = 

F = 

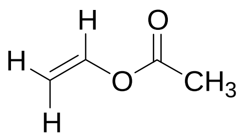
G = 

Answer 17: Spectroscopy and Polymer Chemistry

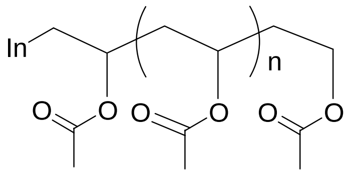
17-1 $C_4H_6O_2$

17-2 C=O group

17-3 **A**



17-4 **B**

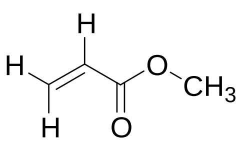


In: initiator

17-5 Organic reactions that could transform acetate to alcohol such as acid or base hydrolysis, alcoholysis, or $LiAlH_4$ reduction.

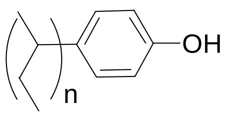
17-6 There are 100 units/molecule. However, the last one does not contain chiral center, therefore, there are 99 chiral centers and each of which would have *R* or *S* configuration. Totally there will be 2^{99} stereoisomers, including enantiomers and diastereomers. Therefore, the number of pairs of enantiomers is $2^{99}/2 = 2^{98}$.

17-7 **C**



17-8 **E**: CO_2 **F**: $(CH_3)_2C=CH_2$

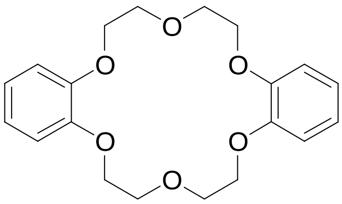
G: **H:** $(CH_3)_2CBr-CH_2Br$



17-9 **I**: (d)

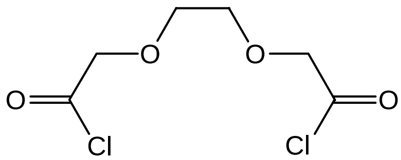
Answer 18: Crown Ether and Molecular Recognition

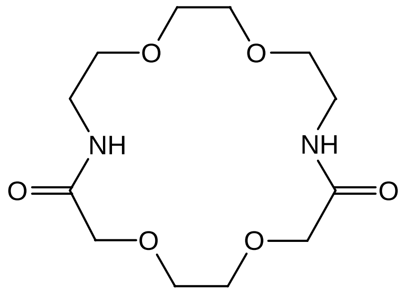
18-1 **B**



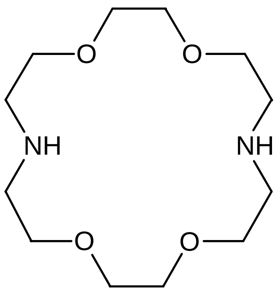
18-2 (c) To remove the tetrahydropyran group

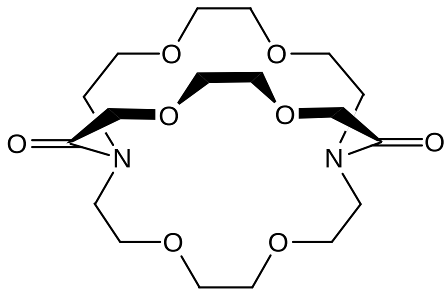
18-3 **C** **D**





E **F**





18-4 (b) A high dilution condition is employed in order to inhibit polymer formation.

18-5 Curve **I** to **I**; Curve **II** to **G**; Curve **III** to **H**