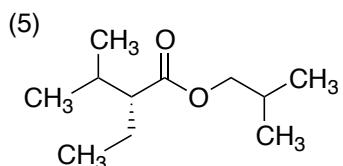
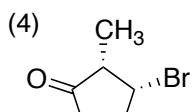
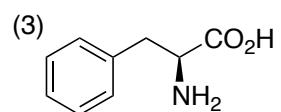
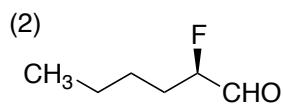
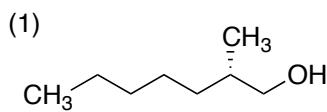


問1.



問2. 1: R

2: R

3: S

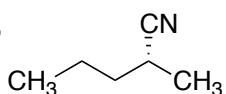
4: R

5: R

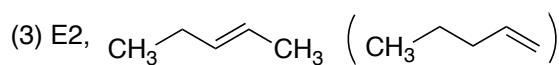
問3. 1, 4

問4.

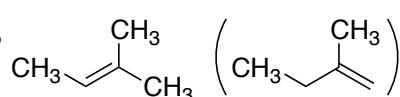
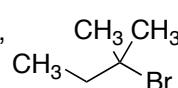
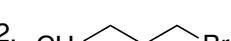
(1) N.R.

(2) S_N2,

(3) E2,



(4) E1,

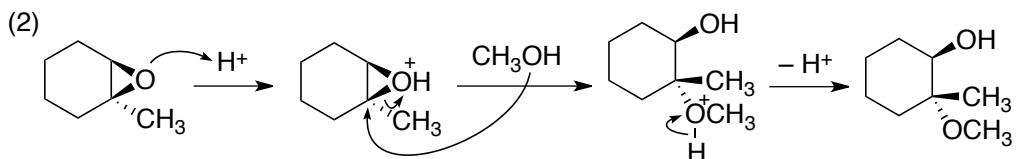
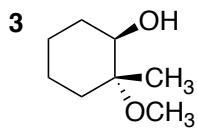
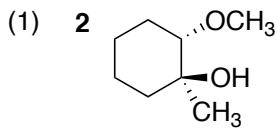
(5) S_N1,(6) S_N2,

問5. 3 < 4 < 1 < 2

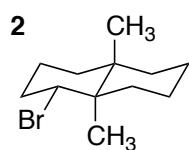
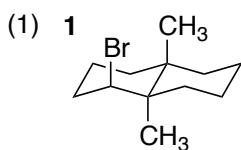
問6. 3 > 4 > 1 > 2

問7. 2 > 1 > 3 > 4

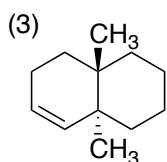
問8.



問9.



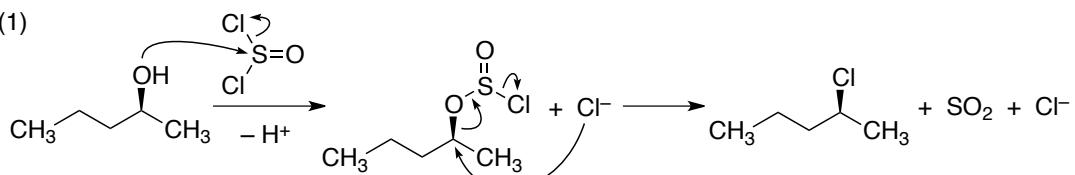
(2) 1



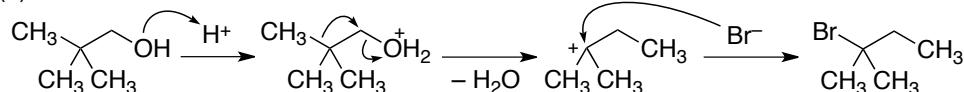
(4) 化合物 **1**, **2** とともに、二つの 6 員環が縮環しているため、イス形立体配座の反転はおこらない。化合物 **1** のイス形立体配座では、臭素置換基のアンチの位置に H が存在するため、E2 反応が速く進行する。一方、**2** のイス形立体配座では、臭素置換基のアンチの位置に H が存在しないため、E2 反応の進行は遅い。

問 10.

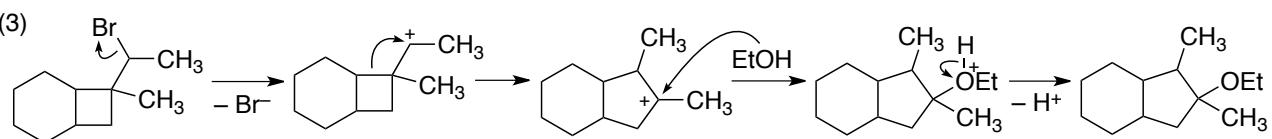
(1)



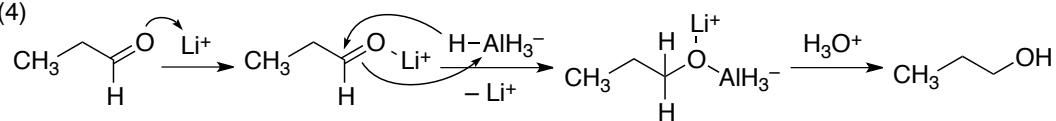
(2)



(3)

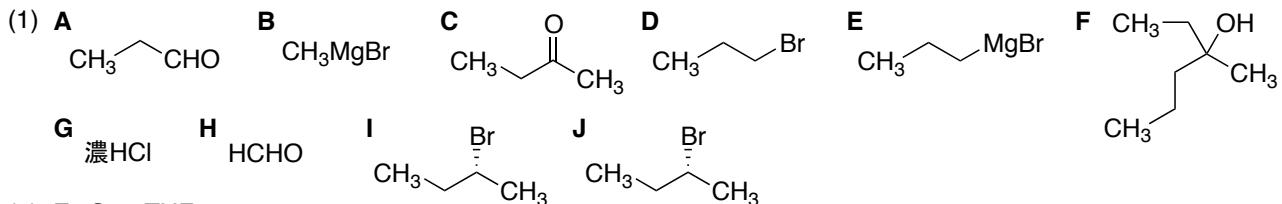


(4)



問 11.

(1)



(2) Et_2O or THF

(3) H_2CrO_4

(4) CC(=O)O