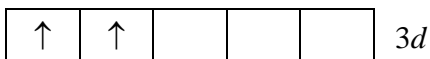


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- When comparing binary acids within the same group, the E-H bond strength determines the acidity. As the atomic size of E becomes larger, the E-H becomes longer and weaker. Thus H^+ is more readily formed in aqueous solution.



The presence of 2 unpaired electrons makes V^{3+} paramagnetic.

2007-J-3

- | | | |
|----------------------------|-----------------------------------------|-------------------------------------------|
| III | II | III |
| 6 | 6 | 6 |
| 5 | 9 | 3 |
| K^+
$[Fe(CN)_6]^{3-}$ | $[Cu(NH_3)_4(H_2O)_2]^{2+}$
NO_3^- | <i>cis</i> - $[CrCl_2(en)_2]^+$
Cl^- |

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- 2.22
8.52
3.75
HCOOH (acid)

2007-J-5

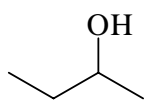
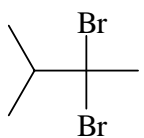
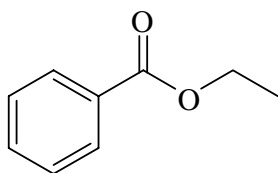
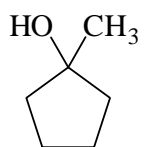
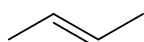
- Allotropes are different structural forms of the same element.
white phosphorus and red phosphorus, O_2 and O_3 , many other examples
- $1.9 \times 10^{-7} \text{ g L}^{-1}$
 $7.8 \times 10^{-2} \text{ g L}^{-1}$

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- Rate = $k[Cl_2][NO]$ $180 \text{ mol}^{-2} \text{ L}^2 \text{ min}^{-1}$

2007-J-7

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2007-J-8

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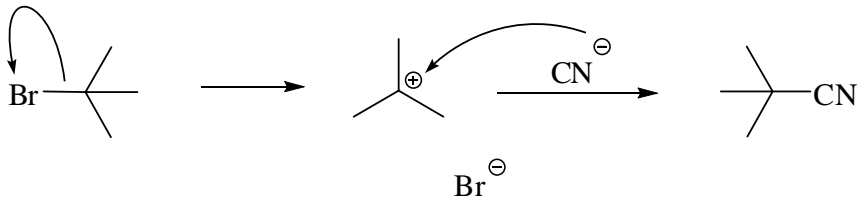
A: NaOH / H₂O / heat

B: H₂ / Pd catalyst

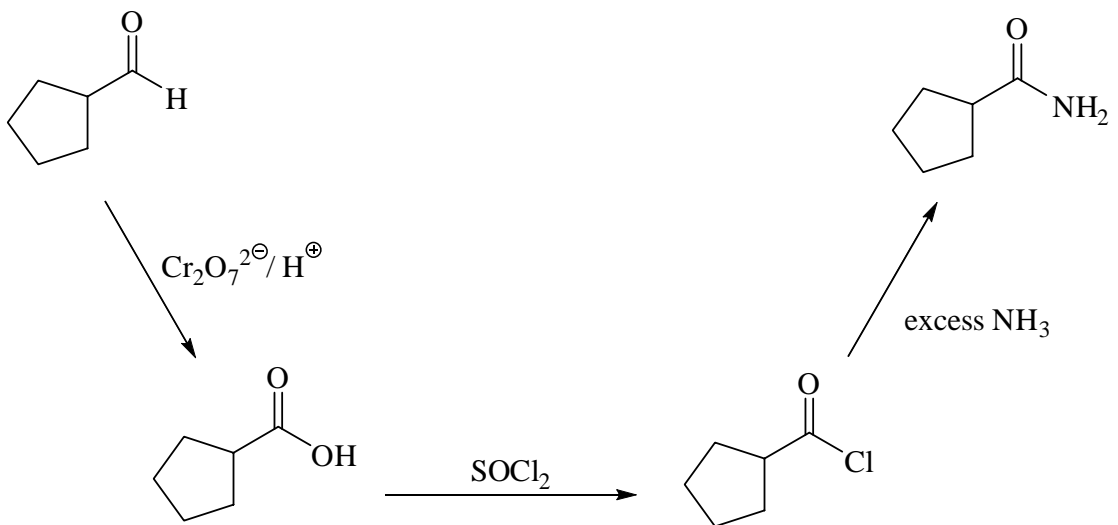
C: Mg / dry ether

D: 1. CO₂

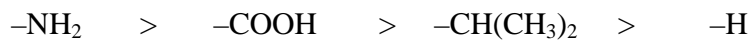
2007-J-9



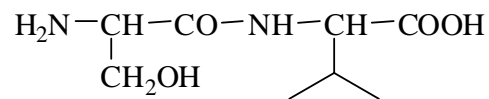
S_N1. S = substitution - the general class of reaction
N = nucleophilic - one nucleophile (Br⁻) is replaced by another (CN⁻)
1 = unimolecular - one species takes part in the rate determining step



2007-J-10



(S)



α-helix, β-pleated sheet