

CHEM1611 Chemistry 1A (Pharmacy) - June 2013

2013-J-2

- The force of attraction experienced by the outer electrons of an atom. It's a combination of the magnitude of the nuclear charge mitigated by shielding by the inner electrons. Effective nuclear charge increases to the top right of the periodic table.

Unique for each element, the spectrum represents emission of light of discrete frequencies corresponding to the energy differences between electron energy levels in an atom. It results from the movement of electrons from a higher energy level to a lower one.

The electrostatic attraction between cations and anions. It is long range and non-directional and depends on the magnitude of the charges and the sizes of the ions. Typical of bonding between a group 1 or 2 metal with a group 16 or 17 non-metal.

Inner shell electrons that are not involved in bonding.

2013-J-3

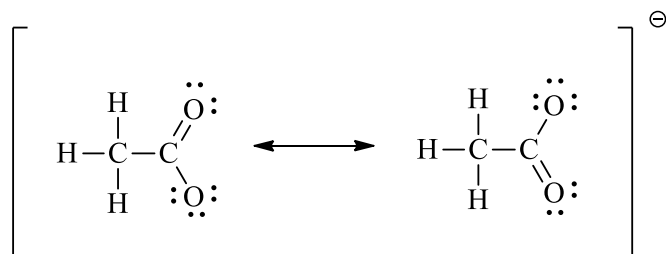
- CO₂ is a molecular covalent compound containing double bonds, O=C=O. There are weak forces between the molecules and hence CO₂ is a gas at room temperature.

SiO₂ is a giant covalent structure containing an extensive lattice of Si-O single bonds that are difficult to break and hence it has a high melting point.

- ⁴₂He
¹¹₅B

2013-J-4

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sp^3

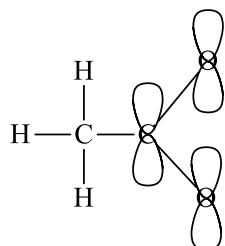
tetrahedral

109°

sp^2

trigonal planar

120°

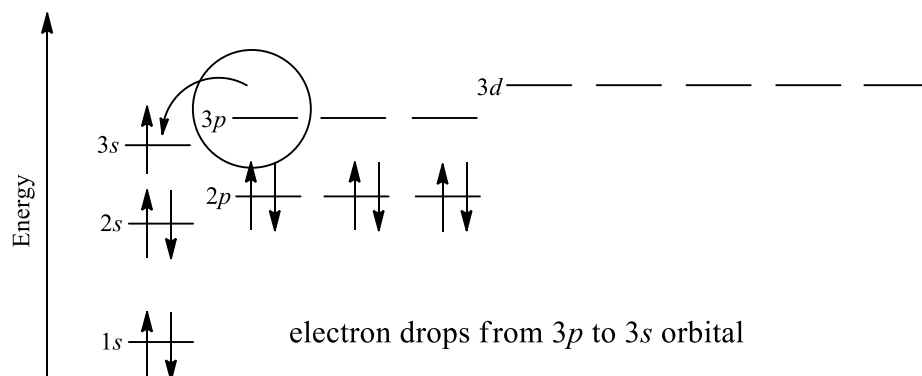


4

sp^2

2013-J-5

- $3.4 \times 10^{-19} \text{ J}$ 200 kJ mol^{-1}



A quantum mechanical model includes subshells, but a Bohr model does not. The yellow light is associated with electron movement between subshells.

2013-J-6

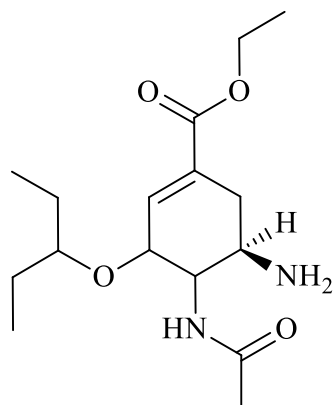
	1. NaOH 2. CH ₃ I	
1,4-dimethylcyclohexene	H ₂ Pd/C catalyst	

2013-J-7

- $C_{16}H_{28}N_2O_4$
alkene, amide, ester, ether, primary amine

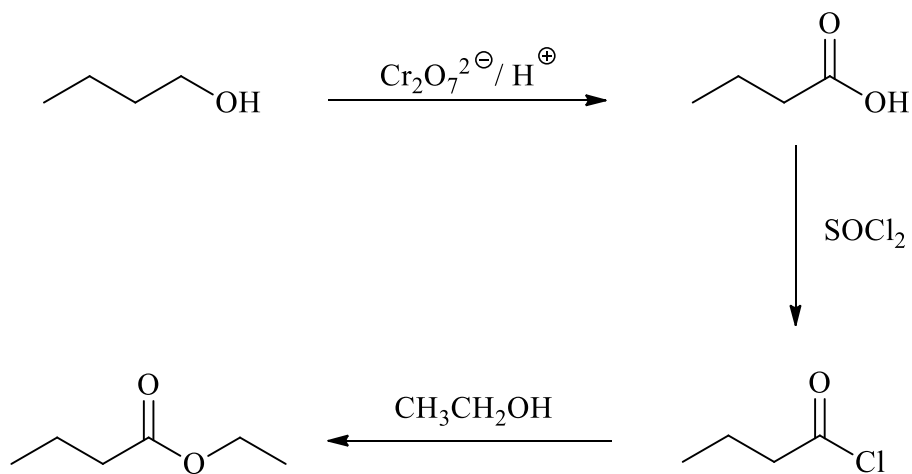
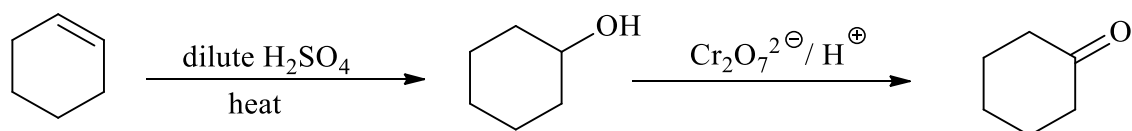
3

8



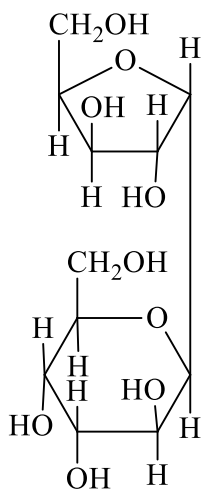
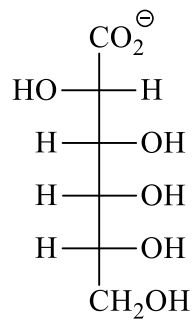
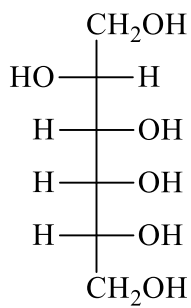
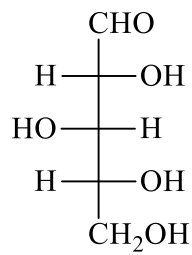
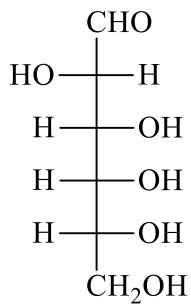
2013-J-8

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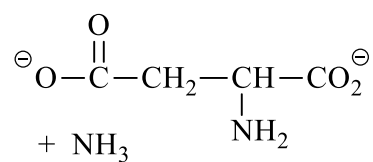
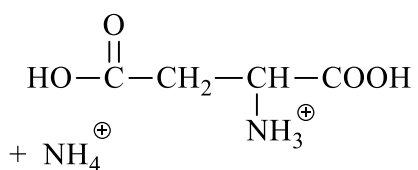
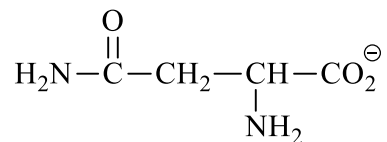
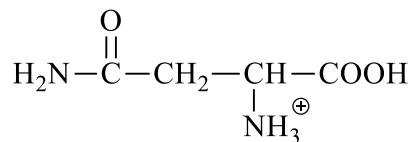


2013-J-9

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2013-J-10

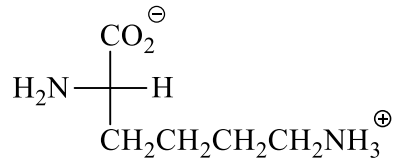


2013-J-11

- ala-lys-lys lys-ala-lys lys-lys-ala

The alanine side chain is neutral whilst the lysine side chain is basic. The tripeptide will therefore be basic.

9.74



2013-J-12

- It is a DNA fragment:

The sugar is deoxyribose (RNA has ribose as the sugar).

The topmost nucleic base is thymine (RNA utilises uracil instead of thymine).

