

Index

A

abzymes

8.1.5: A5. Transition State Stabilization

antibonding molecular orbital

1.4.1: The H_2^+ Prototypical Species

1.4.2: Bonding and Antibonding Orbitals

antibonding orbitals

1.4: Molecular orbital theory- conjugation and aromaticity

aromatic compounds

1.4: Molecular orbital theory- conjugation and aromaticity

aromatic sextet

1.4: Molecular orbital theory- conjugation and aromaticity

aromaticity

1.4.8: Benzene and Aromaticity

B

benzene ring

1.4.8: Benzene and Aromaticity

bond delocalization

1.4: Molecular orbital theory- conjugation and aromaticity

bond energy

1.3.2: Covalent Bonding and Orbital Overlap

3.2: Bond Energies

bond length

1.3.2: Covalent Bonding and Orbital Overlap

bonding molecular orbital

1.4.1: The H_2^+ Prototypical Species

1.4.2: Bonding and Antibonding Orbitals

bonding orbitals

1.4: Molecular orbital theory- conjugation and aromaticity

C

catalyst

2.3.8: A Catalyst Affects the Mechanism and Activation Energy

chain reaction

2.3.7: Some Reaction Mechanisms Involve Chain Reactions

conjugated pi bonds

1.4: Molecular orbital theory- conjugation and aromaticity

constructive intinterference

1.4: Molecular orbital theory- conjugation and aromaticity

Cortes

1.3.4: Delocalization of Electrons

Coulomb energy

1.5: Comparison of the Resonance and Molecular-Orbital Methods

D

delocalization energy

1.4.6: Butadiene is Stabilized by a Delocalization Energy

detailed balance

2.3.2: The Principle of Detailed Balance

3.5: The Principle of Microscopic Reversibility

dipole

1.2.3: Dipole-Dipole Interactions

dispersion forces

1.2.4: Polarizability

E

electric dipole moment

1.1.3: Dipole Moments

electrophile

4.1: Polar Reactions

elementary reaction

2.3.1: A Mechanism is a Sequence of Elementary Reactions

enthalpy change

3.2.1: Enthalpy Changes in Reactions

3.2.2: Enthalpy Changes in Reactions II

F

flooding

2.3.10: Predicting Rate Laws from Proposed Mechanisms

fused ring aromatics

1.4: Molecular orbital theory- conjugation and aromaticity

H

Hückel rule

1.4: Molecular orbital theory- conjugation and aromaticity

Hückel's rule

1.4.8: Benzene and Aromaticity

Hammett equation

5.1: Correlations of Structure with Reactivity of Aromatic Compounds

Hammond Postulate

3.3.3: The Hammond Postulate

heat of hydrogenation

1.4: Molecular orbital theory- conjugation and aromaticity

heterocycles

1.4: Molecular orbital theory- conjugation and aromaticity

hybrid orbital

1.3.2: Covalent Bonding and Orbital Overlap

1.3.3: Hybrid Orbitals

hybridization

1.3.2: Covalent Bonding and Orbital Overlap

1.3.3: Hybrid Orbitals

K

kinetic isotope effect

7.1: Kinetic Isotope Effects

L

Lindemann mechanism

2.3.6: The Lindemann Mechanism

Linear Combination of Atomic Orbitals (LCAO)

1.4.1: The H_2^+ Prototypical Species

M

microscopic reversibility

3.5: The Principle of Microscopic Reversibility

3.5.1: Microscopic Reversibility and the Second Law

MO procedure

1.5: Comparison of the Resonance and Molecular-Orbital Methods

MO theory

1.4: Molecular orbital theory- conjugation and aromaticity

molecular orbitals

1.4: Molecular orbital theory- conjugation and aromaticity

N

nodes

1.5: Comparison of the Resonance and Molecular-Orbital Methods

nonbonding orbitals

1.4: Molecular orbital theory- conjugation and aromaticity

nucleophile

4.1: Polar Reactions

P

pi bond

1.4: Molecular orbital theory- conjugation and aromaticity

polar reaction

4.1: Polar Reactions

polarity

1.1.5: Molecular Polarity

polarizability

1.2.4: Polarizability

4.1: Polar Reactions

potential energy surface

3.3.2: The Potential-Energy Surface Can Be Calculated Using Quantum Mechanics

R

Rapid Equilibrium Approximation

2.3.10: Predicting Rate Laws from Proposed Mechanisms

reaction constants

5.1: Correlations of Structure with Reactivity of Aromatic Compounds

reaction mechanism

2.3.1: A Mechanism is a Sequence of Elementary Reactions

S

secular equations

1.4.2: Bonding and Antibonding Orbitals

sigma bond

1.4: Molecular orbital theory- conjugation and aromaticity

sp hybrid orbital

1.3.3: Hybrid Orbitals

sp² hybrid orbital

1.3.3: Hybrid Orbitals

sp³ hybrid orbital

1.3.3: Hybrid Orbitals

sp³d hybrid orbital

1.3.3: Hybrid Orbitals

sp³d² hybrid orbital

1.3.3: Hybrid Orbitals

steady state approximation

2.3.4: The Steady-State Approximation

substituent constant

5.1: Correlations of Structure with Reactivity of Aromatic Compounds

T

triplet state

1.4.8.1: Hückel's $4n + 2$ Rule

V

valence bond theory

- 1.3.2: Covalent Bonding and Orbital Overlap
- 1.3.3: Hybrid Orbitals

VB treatment

- 1.5: Comparison of the Resonance and Molecular-Orbital Methods