STUDENT WORKSHEET | Curved-Arrow Reaction Mechanisms

Name _____ Date _____ Class _____

Instructions: Answer 1-6. Show clear structures and calculations for 7-8. Consult the worked key after completing the worksheet.

PART A: Multiple choice and application

1. The tail of a curved arrow showing an electron pair must start

(A) At an electron source
(B) At an empty orbital only
(C) At a + formal charge

2. In SN2, bond-making and bond-breaking occur

(A) In one concerted step
(B) Only after a stable carbocation forms
(C) In a radical chain

3. What is the source of electrons forming the new pi bond in E2?

(A) The beta C-H sigma bond
(B) A positive charge on leaving group
(C) A spectator counterion

4. Resonance contributors differ in

(A) Positions of nuclei
(B) Electron distribution only
(C) Molecular formula and number of atoms

5. What other arrow is needed when HO- attacks CH3Br?

(A) C-Br bond electrons to Br
(B) An arrow from Br to the hydroxide proton
(C) No second arrow

6. If an arrow creates an extra bond at a neutral amine N, the N often becomes

(A) Negatively charged
(B) Positively charged
(C) A carbon atom

PART B: Drawing and reasoning

7. For HO- + CH3Br -> CH3OH + Br-, draw both curved arrows and identify what bonds change.

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8. Draw all electron-pair arrows for E2 of bromoethane with ethoxide and name the organic product.

Check chemical formulas, atom counts, charges, units, and naming before reviewing the key.