A. Definitions of Acid & Base

1. Write down the definitions of acid and base.

<table>
<thead>
<tr>
<th></th>
<th>Arhenius</th>
<th>Bronsted-Lowry</th>
<th>Lewis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td></td>
<td></td>
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<tr>
<td>Base</td>
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</tbody>
</table>

2. Which of the following is a Lewis acid but not Bronsted-Lowry acid?

C₆H₅OH  AlCl₃  H₂O

3. True or False

(a) H₂O is always an acid.        ______
(b) The conjugate base of CH₃CH₂OH is CH₃CH₂O⁻. ______
(c) When a base accepts a proton, it is converted into a conjugate base. ______
(d) Stronger acid has smaller value of Ka. ______

4. Circle the correct answer.

(a) The (stronger / weaker) the acid, the weaker is its conjugate base.
(b) When pKa increases, the acidity (increases / decreases).

5. Define pKa.
B. Acid-Base reactions

Complete the net ionic equation for the reaction below. Use curved arrows to show the flow of electron pairs. Determine the direction of equilibrium.

1. \( \text{CH}_3\text{NH}_2 + \text{H}_2\text{O} \)

2. \( \text{NH}_3 + \text{CH}_3\text{COOH} \)

3. See White Board