

## Worksheet: Equilibrium

Uttar Pradesh State Board · Class 11 · Chemistry · 5 questions · 16 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 16

**Q1.** Find the pH of a 0.1 M CH<sub>3</sub>COOH solution ( $K_a = 1.8 \times 10^{-5}$ ). [3 marks]

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**Q2.** Find the pH of a buffer of 0.1 M CH<sub>3</sub>COOH and 0.2 M CH<sub>3</sub>COONa ( $pK_a = 4.74$ ). [3 marks]

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**Q3.** Predict the effect of increasing temperature on  $N_2 + 3H_2 \rightleftharpoons 2NH_3$  ( $\Delta H = -92.4 \text{ kJ}$ ). [2 marks]

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**Q4.** For  $H_2 + I_2 \rightleftharpoons 2HI$ ,  $K_c = 54.8$  at 425 C. If 0.5 M H<sub>2</sub> and 0.5 M I<sub>2</sub> are mixed, find [HI] at equilibrium. [5 marks]

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**Q5.**  $K_{sp}$  of BaSO<sub>4</sub> is  $1.5 \times 10^{-9}$ . Will a precipitate form when 0.01 M BaCl<sub>2</sub> and 0.01 M Na<sub>2</sub>SO<sub>4</sub> are mixed? [3 marks]

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