

Acid/Base I Written Response:

1.

(3 marks)

Complete the following equilibrium, then predict whether the reactants or products will be favoured and explain why.



2.

(3 marks)

The following three solutions are mixed together in a fourth container:



↑
40.0 mL of
1.0 M HCl



↑
60.0 mL of
1.0 M HBr



↑
100.0 mL of
0.50 M NaOH

What pH results?

3.

What mass of NaOH(s) is required to just neutralize 50.0 mL of 2.0 M H_2SO_4 ?

Begin by writing the balanced equation for the neutralization reaction.

(3 marks)

4.

Water, at 60°C , has a $K_w = 9.55 \times 10^{-14}$.

a) Write an equation representing the ionization of water. Include the heat of reaction (57.1 kJ) in the equation.

(2 marks)

b) If a small amount of NaOH is added to water, what happens to the value of K_w ?

(1 mark)
