Surname:_____; Given name: _____; Student #: _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question, then transfer your answer to the scantron sheet.

1) In the equilibrium system described by: $PO_4^{3-}(aq) + H_2O(l) \rightleftharpoons HPO_4^{2-}(aq) + OH^-(aq)$ 1) _____
Brønsted–Lowry theory would designate:
A) PO_4^{3-} and H_2O as the bases
B) PO_4^{3-} as amphoteric
C) HPO_4^{2-} and OH^- as the acids
D) HPO_4^{2-} and H_2O as a conjugate pair
E) H_2O and OH^- as a conjugate pair

2) Which of the following mixtures would not make an effective buffer? 2) _____
A) mixing equal volumes of 0.10 M $NH_3(aq)$ and 0.10 M of $NH_4Cl(aq)$
B) mixing equal volumes of 0.10 M $HC_2H_3O_2(aq)$ and 0.050 M $NaOH(aq)$
C) mixing equal volumes of 0.10 M $NaC_2H_3O_2(aq)$ and 0.10 M $HCl(aq)$
D) mixing equal volumes of 0.10 M $NaC_2H_3O_2(aq)$ and 0.050 M $HCl(aq)$
E) mixing equal volumes of 0.10 M $NaC_2H_3O_2(aq)$ and 0.10 M $HC_2H_3O_2(aq)$