BRAIN STORMING TEST (IONIC EQUILIBRIA)

NAME: .....

1.Explain what is meant by the term,

i)pH

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ii) Buffer solution

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b) Briefly describe how a solution of ethanoic acid and sodium ethanoate acts as a buffer.

Calculate the pH of a;

i)0.1M aqueous ethanoic acid

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ii) Buffer solution made by dissolving 16.4g of Sodium ethanoate, CH_3COONa in $1dm^3$ of a 0.01M ethanoic acid.

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(Ka for ethanoic acid = 1×10^{-14})

2.i) Write the equation for the hydrolysis of sodium ethanoate in aqueous solution.

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ii) Write an expression for hydrolysis constant Kh of Sodium ethanoate.

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b) The PH of 0.1M aqueous sodium ethanoate solution is 8.9.

Calculate the hydrolysis constant of the solution (Kw =1×10^{-14})

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3.Ethanoic acid is a weak acid and has a pKa value of 4.74.

a) State what is meant by the term a weak acid.

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b) Write an equation for the ionization of ethanoic acid.

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c) Calculate pH of a 0.75M ethanoic acid solution

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4.Calculate the pH of a 0.002M of ammonia. (pKb for ammonia is 4.76, Kw =1×10^{-14})

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5.Calculate the Ph of the resultant solution formed when 20cm^3 of 0.1M potassium hydroxide solution was added to 40cm^3 of 0.05M benzoic acid at 25°C. (Ka = 6.3 ×10^{-5})

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6. a) phenyl amine chloride undergoes hydrolysis in water.

i) write the equation for the reaction.

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ii) write expression for hydrolysis constant Kh

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b) A solution containing 15.0g of phenyl amine chloride in 100cm^3 of water was shaken with 100cm^3 of benzene. At equilibrium, the benzene layer contains 0.12g of phenyl amine'

calculate;

i) The molar concentration of phenyl amine in benzene layer.

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ii) The hydrolysis constant Kh of phenyl amine chloride solution

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