Practice Question Set For A-Level
**Subject : Chemistry**
**Paper-1 Topic: Physical 1_Acids And Bases**

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**Name of the Student**:_____
**Max. Marks : 15 Marks** **Time :15 Minutes**

Q1.

This question is about sulfuric acid and its salts.

(a) Draw the displayed formula of a molecule of $H_2SO_4$

**(1)**

(b) In aqueous solution, sulfuric acid acts as a strong acid. The $H_2SO_4$ dissociates to form $HSO_4^-$ ions and $H^+$ ions.

The $HSO_4^-$ ions act as a weak acid and dissociate to form $SO_4^{2-}$ ions and $H^+$ ions.

Give an equation to show each stage in the dissociation of sulfuric acid in aqueous solution.

Include appropriate arrows in your equations.

Equation 1 _____

Equation 2 _____

**(2)**

(c) A student is required to make 250 $cm^3$ of an aqueous solution that contains an accurately measured mass of sodium hydrogensulfate ($NaHSO_4$).

Describe the method that the student should use to make this solution.

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**(4)**

(d) A solution that contains 605 mg of $NaHSO_4$ in 100 $cm^3$ of solution has a pH of 1.72

Calculate the value of $K_a$ for the hydrogensulfate ion ($HSO_4^-$) that is behaving as a weak acid. Give your answer to three significant figures.

State the units of $K_a$

*K* _____ Units _____

**(6)**

(e) Some sodium sulfate is dissolved in a sample of the solution from part **(d)**.

Explain why this increases the pH of the solution.

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**(2)**
**(Total 15 marks)**

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