NAME……

**BRAINSTORMING TEST**. (***STRUCTURE AND BONDING***).

1) Define the term bonding.

a) Write any three types of bonding.

b) Explain the following observations.

(i) Aluminium oxide has a higher melting point.

(ii) Carbon tetrachloride is non polar yet the carbon chlorine bond is polar.

2) Draw the structure and state the shape of each of the following species.

| ***SPECIES*** | ***STRUCTURE*** | ***SHAPE.*** |
|---|---|---|
| $SiO_3^{2-}$ | | |
| $BrO_3^-$ | | |
| $Cl_2O$ | | |
| $CrO_4^{2-}$ | | |
| $ClO_3^-$ | | |
| $SF_6$ | | |

| | | |
|---|---|---|
| $BF_3$ | | |
| $SnCl_2$ | | |
| $NO_2^-$ | | |
| $NO_3^-$ | | |
| $SiF_4$ | | |
| $CO_3^{2-}$ | | |

a) Write equation for the reaction between.

(i) Boron trifluoride and ammonia.

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(ii) Acidified potassium iodide solution and aqueous sodium chlorate (v) solution.

(iii) Tin (ii) chloride and iron (ii) ions.

3. What is meant by hydrogen bonding?

a. Explain the following observations.

I. 2-chlorophenol is less soluble in water than 4-chlorophenol.

II. Why ethanol has a higher boiling point $78^0C$ than methoxymethane.

III. Why ice floats on water.

4. Draw the structure and name the shapes of the following.

| Oxyanion | Structure | Shape |
|---|---|---|
| $SO_3^{2-}$ | | |
| $SO_4^{2-}$ | | |

a) Explain the structure of the $SO_3^{2-}$ ion.

b) Name the reagent that can be used to distinguish between the oxyanions.

c) State what would be observed;

If a solution of each of the oxyanion is treated separately with the reagent(s) you have named in b(i)

***THE END.***