CHEMISTRY DEPARTMENT 2023
S.4 BRAINSTORMING TEST
TOPIC; NITROGEN ANT ITS COMPOUNDS
SUBTOPIC; AMMONIA

NAME……**INDEX number**…….

Signature …… **STREAM**…….

1. (a) Nitrogen can react with hydrogen in the presence of a catalyst which is finely divided to form ammonia in the Haber process

(i) State the source of nitrogen and hydrogen (01 mark)

.....

.....

(ii) Name the catalyst used in the reaction (01 mark)

.....

(iii) Explain why the catalyst is finely divided (01 mark)

.....

(iv) Write equation for the reaction leading to the formation of ammonia

.....

.....

(v) State two factors that can affect the yield of ammonia in the above process

.....

.....

(b) Write equation for the reaction to show that ammonia can

(i) Act as a reducing agent (1½ marks)

.....

.....

(ii) Burn in oxygen (1½ marks)

.....

.....

(c) Ammonia obtained by Haber process can be converted to nitrogen(II) oxide

(i) Write equation for the reaction leading to the formation of nitrogen(II) oxide

.....

.....

(ii) State the conditions for the reaction (01 mark)

.....

(d) Write equation to show how nitrogen(II) oxide can be converted to nitric acid.

.....

.....

(d) Ammonia can react with lead(II) oxide

(i) State the conditions for the reaction (01 mark)

.....

.....

(ii) What would be observed (01 mark)

.....

(iii) Write equation for the reaction

.....

.....

(iv) What property of ammonia is shown in the reaction (01 mark)

.....

2. (a) Draw a labeled diagram of the setup of apparatus to show that ammonia is very soluble in water (2½ marks)

(b) Draw a diagram of apparatus that can be used to show that ammonia can burn in oxygen (2½ marks)

3. (a). State why ammonia is **not** dried using

(i). Anhydrous calcium chloride (01 mark)

.....

.....

KIBUGO

(ii). Concentrated sulphuric acid (01 mark)

.....

.....

(b).(i) Name the substance normally used in the laboratory for drying ammonia

.....

(ii)Give a reason for the choice of the drying agent named in (b)(i)

.....

(c) (i) Name a reagent that can be used to test for ammonia gas. (01 mark)

.....

(ii) State what is observed and write the equation for the reaction when the reagent is used

Observation (01 mark)

.....

Equation

.....

4. Describe the laboratory preparation of a dry sample of ammonia gas from ammonium chloride (04 marks)

END.