**GATITU MIXED SECONDARY SCHOOL**

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

**CHEMISTRY FORM THREE PAPER 2 END OF TERM III EXAM:**

**233/2**

**2HRS**

**NAME………………………………..ADM.NO………..**

***Instructions:***

* **Write your name and admission number.**
* **Answer all the questions in the provided spaces.**
* **Mathematical tables and calculators may be used.**
* **All working must be clearly shown.**

1. The grid shown below represents a part of the periodic table.Study the information in it and answer the questions that follow.The letters do not represent the actual symbols of the element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | | |  |
| A |  |  |  |  |  |  |  |  | B |  |
| C | D |  | E |  | F |  |  | G |
|  |  |  |  |  |  |  |  |  |

1. Select and explain.
2. The most reactive metal. (11/2 mks)
3. An element that can be used to fill the filament bulb. (11/2mks)
4. How do the first ionization energy of elements A and C compare.Explain. (2mks)
5. Write the electronic configuration of element F. (1mk)

1. Use (.) and crosses(x) diagram to represent bonding between elements F and B. (2mks)
2. Which element would be most suitable for overhead electric cables? (1mk)
3. Explain the trend in atomic radius from element C to F. (2mks)
4. The scheme below is a summary of the Solvay process in the manufacture of sodium carbonate.
5. Name the raw materials A and B 2mks
6. Identify substance Q and T. 2mks
7. Name the substances separated in the filters. 2mks
8. Write equations for the reaction that occur in kiln
9. (I).2mks
10. Give one use of each of the following . 2mks
11. Substance Q
12. Sodium carbonate
13. Solvay process is one of the most efficient process.Explain
14. The diagram below shows a set up of apparatus used to prepare nitrogen (iv) oxide
15. State the observation made in the boiling tube. 2mks
16. Identify

Liquid B 1mk

Gas A 1mk

1. Explain why lead (II) nitrate is preferred over other metal nitrates in this experiment. 1mk
2. The diagram below represents a brief description of harber process manufacture of ammonia. Study it and answer the questions that follow.
3. Give one source of each of the following 1mk
4. Name the catalyst used in the catalytic chamber and state the temperature at which the reaction takes place. 2mks
5. Explain why the purification of hydrogen and nitrogen gases is necessary 1mk
6. Give one use of ammonia. 1mk

1. Study the flow chart below and answer the questions that follow.
2. Identify
3. Liquid E 1mk
4. Substance G 1mk
5. Substance F 1mk
6. What type of a reaction takes place in;
7. Step (II) 1mk
8. Step (III) 1mk
9. Step (IV) 1mk
10. Step (v) 1mk
11. Under what condition would reaction instep V take place. 1mk
12. What is the role of Ni in step (III) 1mk
13. What observation would be made in step(III)? Explain 2mks
14. Identify substances 5mks
15. Name process I 1mk
16. Write balanced equation for the formation of B ,C and D 1mks
17. Describe the test for colourless gas C 3mks
18. Write balanced equation for the formation of white ppt E. 1mk
19. What does process (ii) indicate about about solubility of E 2mks
20. The diagram below represents part of a set up of apparatus that was used to study properties of dry hydrogen gas.
21. Name suitable reagents that can be used to prepare hydrogen gas in the laboratory. 2mks
22. Complete the diagram by showing how hydrogen gas can be passed over heated copper (II) oxide safely. 3mks
23. Name solid Q 1mk
24. State and explain the observation that would be made when hydrogen gas passed over heated copper (II) oxide . 2mks
25. Name other two gases that would yield the same results as hydrogen gas in the experiment. 2mks
26. State two industrial uses of hydrogen gas in the experiment. 2mks
27. The set up below is to investigate reaction of calcium with water
28. State observation made in the solution 2mks
29. Identify gas C and state its test. 2mks
30. Write a balanced equation between calcium and water 1mk

ii.State effect of the solution in C (ii) on phenophthlein indicator. 1mk

1. State laboratory application of the solution formed in the reaction. 1mk
2. Explain why this cannot be carried out at using potassium metal. 2mks
3. If the solution obtained when calcium reacts with water is filtered .State and explain observations made if carbon (IV) oxide gas is bubbled through the filtered solution for a short time. 2mks