NAME…… ADM NO……CLASS…… ……

SCHOOL …… SIGNATURE…… ……

DATE……

233
CHEMISTRY
MARCH/APRIL, 2014
2 HOURS

FORM TWO JOINT EXAMINATION - 2014

Kenya Certificate of Secondary Education
CHEMISTRY
2 HOURS

INSTRUCTIONS TO CANDIDATES:
The paper contains two Sections:
SECTION A: (60 MARKS)
SECTION B: (40 MARKS)
Answer all the questions in Section **A** and **B** in the spaces provided.

Chemistry Form Two

Turnover

1. An element **M** has atomic number 5.

   (a) Write the electronic configuration of **M** (1mk)

   _____

   (b) State the group and period to which element **M** belongs in the periodic table. (2mks)

   Group_____ Period_____

2. Briefly explain why water is not used to put off oil fires. (2mks)

   _____

   _____

   _____

3. Study the table **below** showing solubility of a salt;

Temperature ^{o}C	Solubility g/100g water
0	60
30	48
70	38
100	28

   What would happen if a sample of a saturated solution of the salt at $30^{o}C$ is heated to $70^{o}C$?

   Explain (2mks)

_____

_____

_____

4. Define the term allotropes. (1mk)

_____

_____

_____

(b) Name **two** crystalline allotropes of sulphur.
(2mks)

_____

_____

5. (a) What is meant by the term cracking.
(1mk)

_____

_____

_____

(b) When the hydrocarbon decane is cracked, an alkane and ethene are obtained.
Write the equation for this reaction.
(1mk)

_____

_____

(c) Give **one** importance of cracking process.
(1mk)

_____

_____

_____

6. (a) A radioactive isotope is found to have 360 counts per second. Thirty minutes later, the
activity had dropped to 45 counts per second. What is half life of the isotope? (2mks)

_____

_____

_____

_____

(b) State **one** application of radio isotope in the industries.
(1mk)

_____

_____

7. The common drying agents such as concentrated Sulphuric (VI) acid are not used to dry
ammonia gas;
(a) State and explain why concentrates sulphuric (VI) acid are not a suitable drying agent. (2mks)

_____

_____

_____

_____

(b) Name a suitable drying agent for ammonia gas.
(1mk)

_____

8. Temporary water hardness can be removed by boiling;
(a) What is hard water?
(1mk)

_____

_____

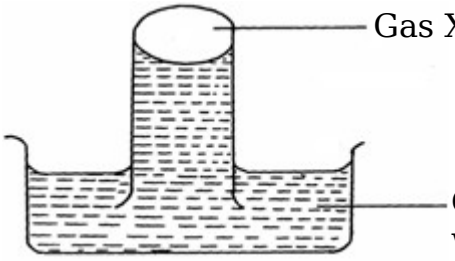
(b) State **one** advantage of hard water.
(1mk)

_____

_____

_____

9. Study the set-up **below** and answer the questions that follow;



(a) Name gas **X**_____ (1mk)

(b) State the condition which is not indicated on the diagram for gas **X** to be formed. (1mk)

_____

10. State **one** use of Sodium hydrogen carbonate. (1mk)

_____

_____

_____

11. Calcium oxide can be used to dry ammonia gas;
(a) Explain why Calcium oxide is not used to dry hydrogen chloride gas.
(2mks)

_____
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_____
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_____
–

(b) Name **one** drying agent for hydrogen chloride gas.
(1mk)

_____
–

_____
–

12. Explain why there is a general increase in the first ionization energies of the elements in period 3 of
the periodic table from left to right.
(2mks)

_____

_____

_____

13. Temporary water hardness can be removed by boiling;
    (a) What is hard water?
(1mk)

_____

_____

    (b) State **one** advantage of hard water.
    (1mk)

_____

_____

_____

    (c) Explain why permanent hardness in water cannot be removed by boiling.
    (2mks)

_____

_____

_____

_____

    (d) Name **two** methods that can be used to remove permanent hardness from water. (2mks)

_____

_____

_____

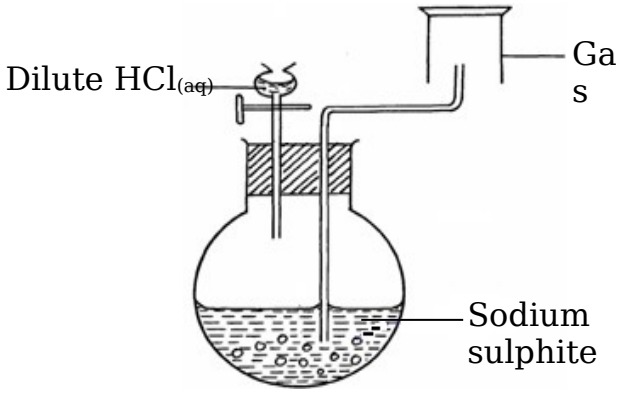
14. State Graham's law of diffusion.
    (2mks)

_____

_____

_____

15. Dilute hydrochloric acid and Sodium sulphite were reacted as shown in the set-up **below**:



(a) Name the gas produced in the flask
(1mk)

_____

(b) Give **two** reasons why no gas was collected in the gas jar.
(2mks)

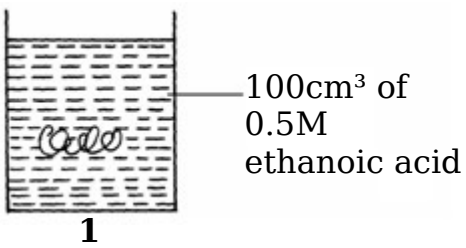
_____

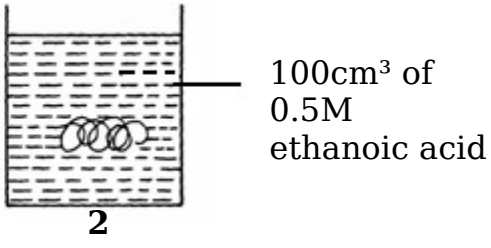
_____

_____

_____

16. In an experiment, equal amounts of magnesium powder were placed in test-tube **1** and **2** as shown
below:





Explain why the amount of hydrogen gas liberated in test-tube 2 is greater than in test-tube 1
before the reaction.
(3mks)

_____

_____

_____

_____

17. Using dots (•) and crosses (X), show bonding in, the compound formed when nitrogen reacts with fluorine. (Atomic numbers F = 9, N = 7).
(2mks)

18. The table **below** gives atomic numbers of some elements.

Element	Atomic number
Q	1
R	7
S	11
T	17

(i) Identify **two** elements which will combine to give:-
(2mks)

(a) An electrovalent compound.
_____

_____

(b) Covalent molecule._____

_____

(ii) Both methane and diamond have covalent bonds. Explain why methane is a gas whereas
diamond is a solid at room temperature. (1mk)

_____

_____

19. (a) In an experiment to determine the percentage by volume of oxygen in the atmosphere, air
is passed over hot excess copper metal in a combustion tube. Give reasons why each of
the following elements should not be used in place of copper.
(2mks)

(i) Magnesium: _____

_____

(ii) Carbon:_____

_____

(b) Describe how you can distinguish between sodium carbonate and sodium hydrogen carbonate. (1mk)

_____

_____

_____

20. Give the observations made and state whether change indicate is physical or chemical when the following substances are heated.

(a) Lead II oxide: (1mk)

Observation.

_____

_____

Change: _____ (½mk)

(b) Copper II hydroxide: (1mk)

Observation.

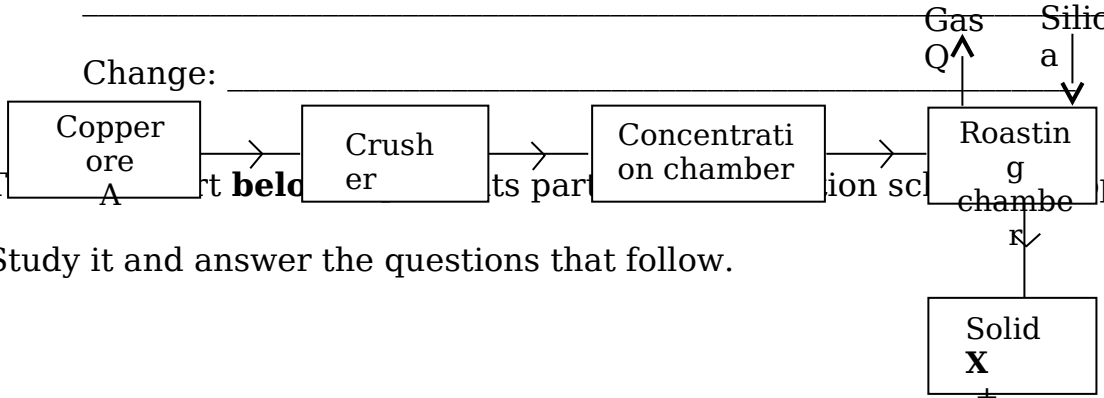
_____

_____

Change: _____ (½mk)

21. T[illegible]rt **belo**[illegible]ts part[illegible]ion sc[illegible]pper from its ore.

Study it and answer the questions that follow.



(i) Identify:

(a) Copper ore **A**: _____

(b) Gas **Q**: _____

(c) Solid **X**: _____ (1½mks)

(ii) Briefly explain how the process of concentration of ore is carried out. (1½mks)

_____

_____

_____

22. Drug abuse is a rapidly growing problem.
(i) Name **two** addictive drugs.

_____

_____

_____
(1mk)

(ii) State and explain **two** problems that drug abuse can cause.

_____

_____

_____

_____
(1mk)

23. Explain why potassium is kept under paraffin while phosphorous under water. (2mks)

_____

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