Candidate's Examination Number.....

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
FORM TWO NATIONAL ASSESSMENT

032 **CHEMISTRY**

Time: 2:30 Hours **Thursday, 17th November 2016 a.m.**

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in the spaces provided.
3. **All** writing must be in black or blue ink **except** diagrams which must be in pencil.
4. **All** communication devices and calculators are **not** allowed in the examination room.
5. Write your **Examination Number** at the top right corner of every page.
6. The following atomic masses may be used: H = 1, C = 12, O = 16, S = 32.

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QUESTION NUMBER	**SCORE**	**EXAMINERS' INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		

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SECTION A (10 Marks)

1. For each of the items (i) – (x), chose the correct answer from the given alternatives and write its letter in the box provided.

(i) Chemistry is defined as

A the scientific study of matter, compounds and chemical reactions
B the scientific study of compounds, mixtures and organic substances
C the scientific study of composition, structure and properties of matter
D the study of relation between human being, medicine and pollution.

(ii) A non-luminous flame is the most applicable flame for heating purposes because

A it is very noisy
B it has no soot
C it is very hot
D it has no colour.

(iii) Matter is defined as anything that has

A volume and occupies space
B mass and occupies space
C mass and occupies density
D density and space.

(iv) Which of the following process is used in preventing rust of an iron?

A Water.
B Boiling.
C Salting.
D Galvanization.

(v) Water is a universal solvent because

A it is available everywhere
B it boils at 100°C
C it dissolves most of the solutes
D it dissolves all crystals compound.

(vi) Carbon has two main isotopes, $^{12}_{6}C$ and $^{14}_{6}C$ with relative abundance of 98.89% and 1.11% respectively. Calculate the relative atomic mass of carbon.

A 13.5
B 12.01
C 6
D 27.

(vii) Class *F* fire can best be extinguished by using

A carbon dioxide
B wet chemical
C water
D sand.

(viii) Which of the following components can be separated by filtration method?

A Sand and water.
B Kerosene and water.
C Ethanol and water.
D NaCl and water.

(ix) Which of the following is the colour change when cobalt chloride paper is used to test the presence of water?

A White when dry and pink when wet.
B Blue when dry and pink when wet.
C Yellow when dry and pink when wet.
D Pink when dry and blue when wet.

(x) All domestic utensils made of iron undergo rusting when exposed to

A air and fire B air and oil
C air and water D water and oil.

SECTION B (20 Marks)

2. Match each item in **List A** with a correct response in **List B** by writing its letter below the number of the corresponding item in the table provided.

List A		List B
(i)	Atoms of the same element that contain different numbers of neutrons.	A Atomic number B Electron
(ii)	Elements with both metallic and non-metallic characteristics.	C Radical D Metalloids
(iii)	Sub atomic particle **not** found in the nucleus of the atom.	E Isotopes F Mass number
(iv)	The number of protons found in the nucleus of the atom.	G Neutron H Allotropes
(v)	The total number of protons and neutrons in the nucleus of the atom.	I Noble gases J Period
(vi)	The number of unpaired electrons on an atom.	K Group
(vii)	Elements which are very stable and rarely react.	L Proton
(viii)	Elements which form diatomic molecules.	M Valence
(ix)	Sub atomic particle with no charge.	N Atomic radii
(x)	A group of atoms with unpaired electrons.	O Halogens

ANSWERS

LIST A	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
LIST B										

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SECTION C (70 Marks)

3. (a) Write the name and chemical formula of two important chemical substances used in the laboratory preparation of oxygen gas.

(i) .....

(ii) .....

(b) Mention four physical properties of oxygen gas.

(i) .....

(ii) .....

(iii) .....

(iv) .....

4. (a) Write four sources of energy used for cooking in Tanzania.

(i) .....

(ii) .....

(iii) .....

(iv) .....

(b) What are the four characteristics of a good fuel?

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(iv) .....

.....

5. (a) What are the five steps used in lighting a Bunsen burner?

(i) .....

(ii) .....

(iii) .....

(iv) .....

.....

(b) Classify fuels based on their physical state and for each class give two examples.

(i) .....

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(ii) .....

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(iii) .....

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6. (a) Explain three factors which affect the problem being investigated.

(i) .....

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(ii) .....

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(iii) .....

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(b) Explain two areas where scientific procedure is applied.

(i) .....

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(ii) .....

.....

.....

7. (a) Differentiate metals from non metals.

S/n	Metals	Non metals
(i)		
(ii)		
(iii)		
(iv)		
(v)		

(b) Classify each of the following elements into their respective groups and periods.

(i) Berylium.....

(ii) Magnesium.....

(iii) Neon.....

(iv) Potassium.....

(v) Chlorine.....

8. (a) Explain each of the following terms:

(i) Burn.....

.....

(ii) Bruises.....

.....

(iii) Fainting.....

.....

(b) What are the six procedures which can be used to help a person with severe bleeding on the wound?

(i) .....

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(ii) .....

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(iii) .....

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(iv) .....

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(v) .....

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(vi) .....

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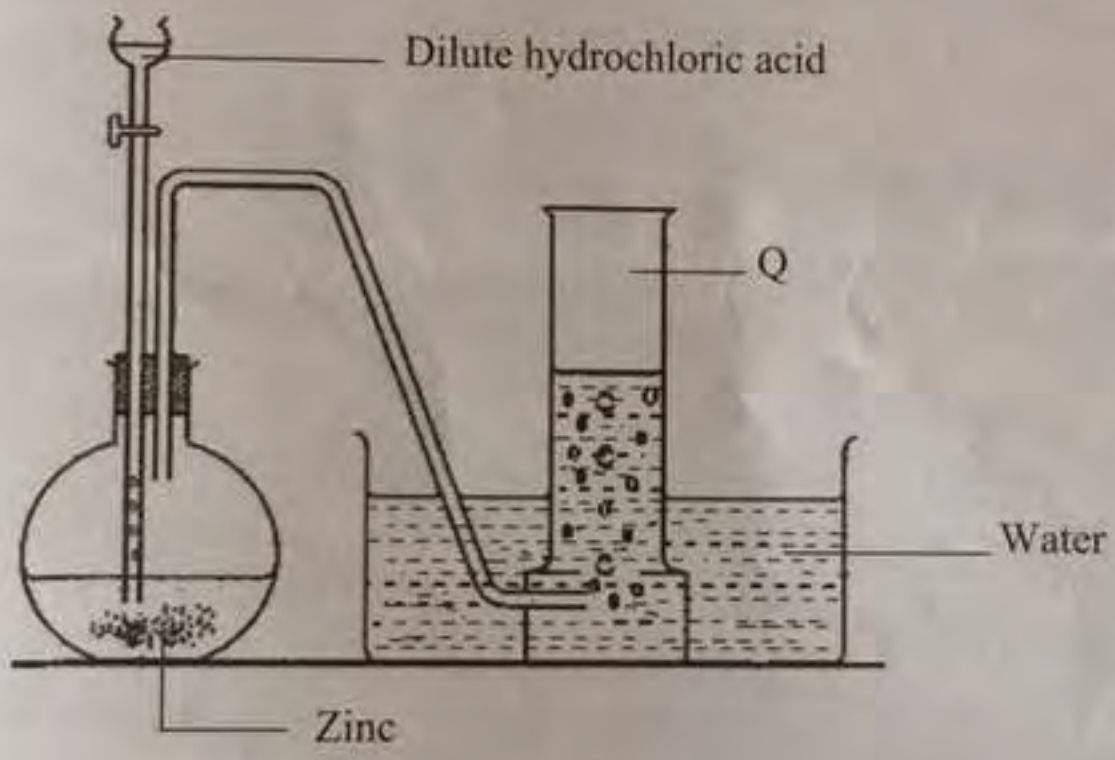
9. The following figure shows a set-up used to prepare gas **Q**.



(a) Identify gas **Q**.

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(b) Identify other two chemical substances that could be used in the laboratory to prepare gas **Q** if zinc is not present.

.....

.....

(c) State two physical properties of gas **Q**.

.....

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(d) State two chemical properties of gas **Q**.

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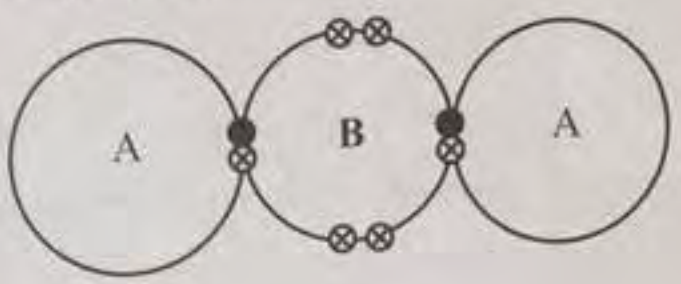
10. (a) The diagram below shows the bonding between two elements A and B



(i) Write the valence of B.

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(ii) Identify the valence of A.

.....

(iii) State the type of bonding formed between A and B.

.....

(iv) Write the formula of the compound formed by A and B.

.....

(b) Write the formula of the compound formed by the combination of:

(i) NH_4^+ and SO_4^{2-}.

.....

(ii) Na^+ and CO_3^{2-}.

.....

(c) State the number of atoms of each element in $CaCl_2$.

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(d) Calculate the oxidation state of sulphur in SO_3^{2-}.

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