SET A

E 906 - Ch

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FIRST TERM EVALUATION 2023-24

CHEMISTRY

Std: IX

Score : 40
Time : 1 ½Hours

Instructions

- First 15 minutes is given as cool off time. This time is to be spent for reading and understanding the questions.
- Answer the questions according to the directions.
- Score and time are to be considered while answering.

Answer any 4 questions from 1 to 5. Each carries 1 Score. **(4 x 1 = 4)**

1. Maximum number of electrons that can be accommodated in the outermost shell of an element is --------- (1)

   (12, 10, 8, 18)

2. The smallest particle of an element that can take part in chemical reactions is called ------ (1)

3. Fill up suitably. (1)

   Electron : J.J Thomson

   Neutron : ----------

4. Complete the chemical equation. (1)

   $Na \rightarrow ---- + 1\bar{e}$

5. The elements belonging to group 18 in the periodic table are called.------- (1)

Answer any 4 questions from 6 to 10. Each carries 2 Scores. **(4 x 2 = 8)**

6. Symbols of some atoms are given. (symbols are not real)

   $^{17}_{8}P \quad ^{40}_{18}Q \quad ^{16}_{8}P \quad ^{40}_{20}R$

   a) Which among these is an isotopic pair ? Give reason. (1)

   b) How many neutrons are present in Q? (1)

7. Analyse the chemical equation given below.

   $$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$$

   a) Which are the products? (1)

   b) Find the total number of atoms present in the reactant side? (1)

8 Some elements and their valencies are given.

Element	Valency
Ba	2
Cl	1
O	2

   a) Write the chemical formula of Barium chloride. (1)

   b) The chemical formula of Calcium oxide is CaO. What is the valency of Ca? (1)

9. Analyse the electronic configurations of the elements given below and answer the following questions. (symbols are not real)

P - 2,7
Q - 2,8,2
R - 2,8,8

a) R is the most stable element. Why? (1)

b) Which one of these elements donates its electrons in chemical reactions? (1)

10. Identify the Ionic and Covalent compounds from the following.

a) CaO b) CO_2 (2)

[Hint: Electronegativity values of O = 3.44, C = 2.5, Ca = 1.0]

Answer any 4 questions from 11 to 15. Each carries 3 Scores. **(4 x 3 = 12)**

11. Some chemical equations are given below.

i) $2Mg + O_2 \rightarrow 2MgO$

ii) $SO_2 + O_2 \rightarrow SO_3$

iii) $2H_2O_2 \rightarrow 2\,H_2O + O_2$

a) Which of these are balanced equations? (2)

b) Balance the unbalanced equation (1)

12. a) Draw the electron dot diagram of the formation of hydrogen chloride(HCl) molecule. (2)

[Hint: Electronic configuration H- 1, Cl - 2,8,7]

b) HCl molecule shows polar nature. Why? (1)

13. Match columns A,B and C suitably. (3)

A	B	C
Electron	has positive charge	not present in protium
Proton	neutral	takes part in chemical reactions
Neutron	has negative charge	its presence causes nuclear charge

14. Answer the following.

a) Write the name of the scientist who established the presence of two types of charges in substances? (1)

b) Who proposed planetary model of atom? (1)

c) Who is known as father of electricity? (1)

15. Choose the correct answer from the box and complete the table. (3)

Carbon-14, Uranium- 235, Phosphorous-31, Cobalt -60

Use	Isotope
Used as fuel in atomic reactors	----------
Used to determine age of fossils	----------
Used in medical field	----------

Answer any 4 questions from 16 to 20. Each carries 4 Scores. **(4 x 4 = 16)**

16. An Aluminium atom (Al) has 13 electrons and 14 neutrons.
    a) Find its mass number. (1)
    b) Draw the Bohr model of Aluminium atom. (2)
    c) Which shell of this atom has the highest energy? (1)

17. The mass number of an atom is 35. The number of electrons present =17
    a) Find its atomic number. (1)
    b) How many neutrons are present in it? (1)
    c) What is its valency? (1)
    d) Write the electronic configuration of the inert gas coming just after this element. (1)

18. Oxygen molecule (O_2) and Nitrogen molecule (N_2) are formed by covalent bonding.
    a) Which type of covalent bond is formed in N_2 molecule.? (1)
    b) How many pairs of electrons are shared in O_2 molecule? (1)
    c) Draw the electron dot diagram illustrating the formation of chemical bond in O_2 molecule [Hint: Atomic number of O = 8, N = 7] (2)

19. Examine the electron dot diagram of the formation of Magnesium oxide (MgO) is given below.

$$\underset{(2,8,2)}{\dot{\underset{\cdot\cdot}{\overset{\cdot\cdot}{Mg}}}} \quad + \quad \underset{(2,6)}{\overset{\cdot\cdot}{\underset{\cdot\cdot}{O}}} \quad \rightarrow \quad [Mg]^{2+} \quad \underset{(..\underset{}{x}..)}{[\overset{\cdot\cdot}{\underset{\cdot\cdot}{O}}]^{2-}}$$

    a) Find x and y (1)
    b) Which atom undergoes oxidation in this reaction? (1)
    c) Which type of chemical bond is shown here? (1)
    d) Write any one property of compounds having this type of bond. (1)

20. The mass number of an atom X is 23. Its M shell contains 1 electron.(symbol X is not real)
    a) Write the electronic configuration of X. (1)
    b) Find the total number of particles present in its nucleus. (1)
    c) How does X attain octet electronic configuration in chemical reactions? (1)
    d) Write the chemical formula of the compound formed when X reacts with oxygen (1)
    [Hint: valency of oxygen = 2]