

**SAMAGRA SHIKSHA KERALA**  
**ANNUAL EVALUATION 2023-24**

Std: IX

CHEMISTRY

Score : 40

Time : 1 ½ Hours

**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. Which molecule among the following shows polar nature? (1)  
(Cl<sub>2</sub>, O<sub>2</sub>, HBr, N<sub>2</sub>)
2. Solid form of carbon dioxide is known as ----- (1)
3. Find the odd one out. (1)  
(NO<sub>2</sub>, CO<sub>2</sub>, Na<sub>2</sub>O, SO<sub>2</sub>)
4. If the oxidation state of oxygen in Mn<sub>2</sub>O<sub>3</sub> is -2, what is the oxidation state of Mn? (1)
5. Find the relationship and fill up suitably. (1)  
Phosphate ion : PO<sub>4</sub><sup>3-</sup>  
Hydronium ion : -----

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

6. Write any two advantages of using organic fertilizers. (2)
7. Pick out the wrong statements from those given below and correct them. (2)
  - a) As the size of atom increases, the ionisation energy decreases.
  - b) On moving towards right along a period the non-metallic nature decreases.
  - c) The metallic nature increases on moving down the group.
  - d) Metals usually have high electronegativity.
8. Baking soda and washing soda are compounds containing carbon. (1)
  - a) Write the chemical formula of baking soda. (1)
  - b) Which is the gas formed when these compounds react with acids? (1)
9. Presence of excess CFC causes depletion of ozone layer. (1)
  - a) What is CFC? (1)
  - b) How does presence of CFC cause depletion of ozone layer? (1)



10. Select the characteristic properties of graphite from those given in the box. (2)

- a) Very hard
  - b) Conductor of electricity
  - c) Non volatile
  - d) Transparent
  - e) High refractive index

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

11. Atomic number and mass number of an atom X are 17 and 35 respectively.  
(Symbol is not real)

- a) Represent this atom using atomic number and mass number. (1)
- b) How many neutrons are present in this atom? (1)
- c) Draw the Bohr model of this atom. (1)

12. The pH values of solutions A,B and C are given.

A - 12	B - 2	C - 7
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- a) Which is the neutral solution? (1)
- b) Which ion is responsible for the characteristic properties of solution B? (1)
- c) What change occurs to the pH value of solution C if some caustic potash is added to it? (1)

13. Hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) is a compound which undergoes self decomposition.

- a) Which gas is produced by the decomposition of  $\text{H}_2\text{O}_2$ ? (1)
- b) Write the balanced chemical equation of the reaction. (1)
- c) Which is the catalyst used to increase the rate of decomposition of  $\text{H}_2\text{O}_2$ ? (1)

14. The following equation shows the preparation of a gas in laboratory.



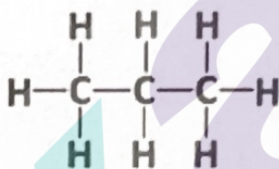
- a) Which is the gas X? (1)
  - b) How is this gas identified? (1)
  - c) To which category does this reaction belong? (1)
- (combination reaction, displacement reaction, decomposition, double decomposition)

15. The atoms of elements Y and Z contain 3 shells each. Element Y belongs to group 2 and element Z belongs to group 15. (Symbols are not real)

- a) To which period do these elements belong? (1)
- b) Write the electronic configuration of element Z. (1)
- c) What is the valency of Y? (1)



16. a) Which are the chemicals required for the preparation of hydrogen in the laboratory? (1)
- b) Which is the product formed when hydrogen is burnt in air? (1)
- c) Write any one advantage of hydrogen as a fuel. (1)
- d) Hydrogen is not commonly used as a domestic fuel. Write any one reason for this. (1)
17. Ammonium sulphate  $[(\text{NH}_4)_2 \text{SO}_4]$  is a salt which is used as a chemical fertilizer.
- a) Which is the cation in this salt? (1)
- b) Write the name of acid used to prepare this salt. (1)
- c) Write the chemical formula of the compound formed by the combination of cation of this compound with nitrate ( $\text{NO}_3^-$ ) ion. (1)
- d) Suggest a sulphate salt which is used as fungicide. (1)
18. Structure of a hydrocarbon is given below.



- a) Which type of covalent bond is present in this compound? (1)
- b) What are hydrocarbons? (1)
- c) Draw the structure of a ring hydrocarbon having three carbon atoms. (1)
- d) The ability of the atoms of an element to combine among themselves is called ----- (1)
19. Carbon monoxide and carbon dioxide are two compounds containing carbon and oxygen.
- a) Which among these are used for the following? (2)
- i) In fire extinguishers                      ii) As a gaseous fuel
- iii) As a reducing agent in metallurgy      iv) Production of carbogen.
- b) Write the balanced chemical equation showing the incomplete combustion of carbon. (1)
- c) What are the components of producer gas? (1)
20. a) Reactants used in the laboratory preparation of chlorine are concentrated hydrochloric acid and ----- (1)
- b) Which is the substance used to remove moisture from chlorine gas during its laboratory preparation? (1)
- c) Which is the unstable compound formed when chlorine gas combines with moisture? (1)
- d) Bleaching powder is a good source of chlorine. How is bleaching powder prepared? (1)