

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)
(Cl₂, O₂, HBr, N₂)
2. Solid form of carbon dioxide is known as ----- (1)
3. Find the odd one out. (1)
(NO₂, CO₂, Na₂O, SO₂)
4. If the oxidation state of oxygen in Mn₂O₃ is -2, what is the oxidation state of Mn? (1)
5. Find the relationship and fill up suitably. (1)
Phosphate ion : PO₄³⁻
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.
 - 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.
 - 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.

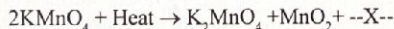
| | | |
|--------|-------|-------|
| A - 12 | B - 2 | C - 7 |
|--------|-------|-------|

- 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 (H_2O_2) is a compound which undergoes self decomposition.

- a) Which gas is produced by the decomposition of H_2O_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 H_2O_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)

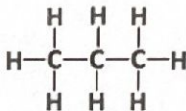
15. The atoms of elements Y and Z contain 3 shells each. Element Y belongs to group 2 and element Z belongs to group 15. (Symbols are not real)

- 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)

Answer any 4 questions from 16 to 20. Each carries 4 Scores.

(4 x 4 = 16)

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 (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)