

## SECOND TERMINAL EVALUATION 2019-20

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 based on instructions.
- Answer the questions according to score and time.

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

1. The scientist, known as "the father of Periodic table", is ----- (1)
2. The catalyst used in the industrial preparation of ammonia is ----- (1)  
(Manganese dioxide, Iron, Vanadium pentoxide, Phosphoric acid)
3. Who discovered that the same negative particles are formed, when electric discharge is passed through any gas in a discharge tube? (1)  
(Niels Bohr, James Chadwick, J.J. Thomson, Rutherford)
4. Which among the following is a molecule showing polar nature? (1)  
(H<sub>2</sub>, HBr, N<sub>2</sub>, Cl<sub>2</sub>)
5. Which of the following is a compound showing basic nature? (1)  
(SO<sub>2</sub>, CO<sub>2</sub>, MgO, NO<sub>2</sub>)

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

6. Magnesium ion (Mg<sup>2+</sup>) and Phosphate ion (PO<sub>4</sub><sup>3-</sup>) combine to form magnesium phosphate.
  - a) Identify the cation in magnesium phosphate. (1)
  - b) Write the chemical formula of magnesium phosphate. (1)
7. a) How many H<sup>+</sup> ions are liberated when one molecule of H<sub>3</sub>PO<sub>4</sub> is completely ionised? (1)  
b) Which is the ion formed when H<sup>+</sup> ion combines with water molecule? (1)
8. An incomplete portion of periodic table is given. (Symbols are not real)

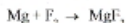
			13	14	15	16	17
							A
				B			
			E		C		D

- a) Which among the given elements has the highest non-metallic character? (1)  
 b) Why are the non-metals called electro negative elements? (1)

9. Analyse the following figure and answer the questions.



- a) In which test tube is the rate of reaction faster? (1)  
 b) Which is the factor that influenced the rate of chemical reaction here? (1)
- 10) The equation of a chemical reaction is given.



(Hint: Electronic configuration of Mg = 2, 8, 2 F = 2, 7)

- a) Which atom loses electron in this reaction? (1)  
 b) Which atom acts as oxidising agent here? (1)

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

11. The pH value of some solutions are given in the box below.

solution	pH value
A	7
B	10.7
C	5.4
D	1

- a) Which solution among these has basic nature? (1)  
 b) Addition of which substance will increase the pH value of solution A? (1)  
 (Acid, Base, NaCl)  
 c) What is the use of determining the pH value of soil before farming? (1)

12. Match the following suitably.

(3)

A	B	C
Noble gases	Elements of groups 3 to 12	Known as rare earths
Lanthanoids	Elements of 18 <sup>th</sup> group	Gives coloured compounds
Transition elements	Kept as separate row below the periodic table	Do not take part in chemical reactions

13. Zinc pieces, zinc powder, dilute HCl and test tubes are given.

a) Write the procedure of an experiment to prove that the rate of a chemical reaction increases, if solid substances are used in powdered form. (2)

b) What is the reason for the increase in the rate of a reaction if the solid substances are used in powdered form? (1)

14. The electronic configuration of oxygen is 2, 6.

a) Oxygen usually shows the valency 2. What is the reason? (1)

b) Illustrate the formation of sodium oxide using electron-dot diagram. (2)

(Hint: Electronic configuration of Na = 2, 8, 1)

15. Acid rain causes many environmental problems.

a) Explain how acid rain is formed. (2)

b) Write any one environmental issue caused by acid rain. (1)

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

16. 20 ml of NaOH is taken in a conical flask and two drops of phenolphthalein are added. Then dilute HCl is added drop by drop, continuously shaking the beaker.

a) NaOH solution is turned into pink colour when phenolphthalein is added. Which nature of the solution is indicated here? (1)

b) As HCl is added, the intensity of pink colour of solution decreases and finally disappears. Why? Explain. (2)

c) Write the chemical equation of the reaction that has occurred here? (1)

17. Bohr atom models of some elements belonging to same group are illustrated here. We see that the size of atom increases on moving from top to bottom in the group.



a) How does the ionisation energy vary when we move down in a group? Give reason. (2)

b)  ${}_{11}\text{Na}$ ,  ${}_{15}\text{P}$ ,  ${}_{17}\text{Cl}$  are the three elements belonging to same period. Which of these has the highest ionisation energy? Give reason. (2)

18. Equal amount of sodium thiosulphate solutions are taken in two test tubes and one of them is heated. Then equal amounts of dilute HCl are added to both test tubes.
- In which test tube does the precipitate form faster? (1)
  - Which is the substance precipitated here? (1)
  - What is the reason for the increase in the rate of reaction here? Explain on the basis of Threshold energy. (2)

19. Some isotopes of carbon are given in the box.

C - 12      C - 13      C - 14

- Which among these isotopes is used for determining the age of fossils? (1)
  - The number of which particle is different in the various isotopes of an element? (1)
  - Write one use each of iodine-131 and uranium-235. (2)
20. Mendeleev, Newlands, Dobereiner, Moseley, Lavoisier

The names of some scientists related to the classification of elements are given in the box. Identify the matching name for each of the following.

- Formed small groups of three elements showing similar properties. (1)
- Gave serial numbers of the elements by X-ray diffraction experiment. (1)
- Classified the elements into metals and non-metals. (1)
- When arranged the known elements in the increasing order of their atomic mass, found that every eighth element is a repetition in properties of the first. (1)