

# CLASS IX- HY\_2021-22 CHEMISTRY (PAPER-2)

DATE: 31.08.2021

TIME: 35 MINUTES

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\* Required

1. Email \*

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2. Name \*

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3. Class & Section \*

*Mark only one oval.*

☐ IXA

☐ IXB

☐ IXC

☐ IXD

☐ IXE

☐ IXF

☐ IXG

QUESTION 1

4. 1. A reddish brown coloured metal used in electric wires, when powdered and heated strongly in an open China dish, its colour turns black. When hydrogen gas is passed over this black substances, it regain its original colour. Based on this information, the metal and black coloured substances are: \*

*Mark only one oval.*

- ☐ a. copper and copper nitrate
- ☐ b. silver and silver oxide
- ☐ c. copper and copper oxide
- ☐ d. aluminium and aluminium oxide

## QUESTION 2

5. 2. The isotope deuterium of hydrogen has \*

*Mark only one oval.*

- ☐ a. No neutrons and one proton
- ☐ b. One neutrons and two protons
- ☐ c. One electron and two neutron
- ☐ d. One proton and one neutron

## QUESTION 3

6. 3. Sodium chloride reacts with manganese dioxide and sulphuric acid to give sodium bisulphate, manganous sulphate, chlorine and water. The complete balanced reaction is:- \*

*Mark only one oval.*

- ☐ a.  $2\text{NaCl} + \text{MnO}_2 + 2\text{H}_2\text{SO}_4 \rightarrow \text{NaH}_2\text{SO}_4 + \text{Mn}_2\text{SO}_4 + \text{Cl}_2 + 2\text{H}_2\text{O}$
- ☐ b.  $2\text{NaCl} + \text{MnO}_2 + 3\text{H}_2\text{SO}_4 \rightarrow 2\text{NaHSO}_4 + \text{MnSO}_4 + \text{Cl}_2 + 2\text{H}_2\text{O}$
- ☐ c.  $2\text{NaCl} + \text{MnO}_2 + 2\text{H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + \text{MnSO}_4 + \text{Cl}_2 + 2\text{H}_2\text{O}$
- ☐ d.  $2\text{NaCl} + \text{MnO}_2 + 3\text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{HSO}_4 + \text{MnSO}_4 + \text{Cl}_2 + 2\text{H}_2\text{O}$

## QUESTION 4

7. 4. A redox reaction is one in which- \*

1 point

*Mark only one oval.*

- ☐ a. both the substance are reduced
- ☐ b. both the substance are oxidised
- ☐ c. an acid is neutralised by the base
- ☐ d. one substance is oxidised while the other is reduced

## QUESTION 5

8. 5. Which of the following pairs of substances on reaction will not evolve  $H_2(g)$ ? \*

1 point

*Mark only one oval.*

- ☐ a. Fe and  $H_2SO_4$
- ☐ b. Copper and HCl (aqueous)
- ☐ c. Sodium and ethyl alcohol
- ☐ d. Iron and steam

## QUESTION 6

9. 6. An element M has a valency 3+. What will be the formula of its silicate? \*

1 point

*Mark only one oval.*

- ☐ a.  $M(SiO_3)_2$
- ☐ b.  $MSiO_3$
- ☐ c.  $M_2(SiO_3)_3$
- ☐ d.  $M_2(SiO_2)_3$

## QUESTION 7

10. 7. Identify the oxidising agent and the reduced product in the reaction: 2 points  
 $2\text{FeCl}_3 + \text{H}_2\text{S} \rightarrow 2\text{FeCl}_2 + 2\text{HCl} + \text{S}$  \*

*Mark only one oval.*

- ☐ a.  $\text{FeCl}_3$ , S  
☐ b.  $\text{H}_2\text{S}$ ,  $\text{FeCl}_2$   
☐ c.  $\text{FeCl}_3$ , HCl  
☐ d.  $\text{FeCl}_3$ ,  $\text{FeCl}_2$

#### QUESTION 8

11. 8. The number of electrons and protons in a nitride ion is: \* 1 point

*Mark only one oval.*

- ☐ a. 7,10  
☐ b. 10,7  
☐ c. 3,7  
☐ d. 10,3

#### QUESTION 9

12. 9. What happens when copper rod is dipped in iron sulphate solution? \* 1 point

*Mark only one oval.*

- ☐ a. Copper displaces iron  
☐ b. Blue colour of copper sulphate solution is obtained  
☐ c. Reaction is exothermic  
☐ d. No reaction takes place

#### QUESTION 10

13. 10. In a chemical reaction \_\_\_\_participate \*

1 point

*Mark only one oval.*

- ☐ a. all the electrons of the atom
- ☐ b. protons
- ☐ c. valence electrons
- ☐ d. electrons and protons

#### QUESTION 11

14. 11. If the pressure is increased by 2 times of a certain amount of gas at a fixed temperature, then what would be its final volume? \*

1 point

*Mark only one oval.*

- ☐ a. Double
- ☐ b. One half
- ☐ c. Triple
- ☐ d. One fourth

#### QUESTION 12

15. 12. Which of the following metal evolves hydrogen on reacting with cold dilute nitric acid \*

1 point

*Mark only one oval.*

- ☐ a. magnesium
- ☐ b. iron
- ☐ c. aluminium
- ☐ d. copper

#### QUESTION 13

16. 13. Number of valence electrons in  $O^{2-}$  is: \*

1 point

*Mark only one oval.*

- ☐ a. 6
- ☐ b. 8
- ☐ c. 10
- ☐ d. 4

#### QUESTION 14

17. 14. Gas that turns lead acetate paper silvery black and it evolved with rotten egg smell \*

1 point

*Mark only one oval.*

- ☐ a.  $H_2$
- ☐ b.  $CO_2$
- ☐ c.  $NO_2$
- ☐ d.  $H_2S$

#### QUESTION 15

18. 15. On converting 308 K, 329 K and 391 K to Celsius scale, the correct sequence of temperatures will be: \*

1 point

*Mark only one oval.*

- ☐ a.  $33^\circ C$ ,  $56^\circ C$  and  $118^\circ C$
- ☐ b.  $35^\circ C$ ,  $56^\circ C$  and  $119^\circ C$
- ☐ c.  $35^\circ C$ ,  $56^\circ C$  and  $118^\circ C$
- ☐ d.  $56^\circ C$ ,  $119^\circ C$  and  $35^\circ C$

#### QUESTION 16

19. 16. A non metallic element X is tetravalent and another metallic element Y is divalent. The compound formed by these two elements will be: \*

1 point

*Mark only one oval.*

- ☐ a. YX
- ☐ b.  $XY_2$
- ☐ c.  $Y_2X$
- ☐ d.  $XY_4$

#### QUESTION 17

20. 17. When we blow air into the balloon, it inflates because: \*

1 point

*Mark only one oval.*

- ☐ a. air particles diffuse into the balloon
- ☐ b. air particles collide with the walls of the balloon and exert pressure on them
- ☐ c. the temperature of air in the ballooon ncreases
- ☐ d. rubber is elastic in nature

#### QUESTION 18

21. 18. The original colour of the substance is light green, after heating leaves black residue, also turns moist blue litmus faint red. The substance mentioned is: \*

1 point

*Mark only one oval.*

- ☐ a. Copper carbonate
- ☐ b. Lead nitrate
- ☐ c. Washing soda
- ☐ d. Red lead

#### QUESTION 19

22. 19. What is the nature of the Pressure-Volume vs Pressure (PV vs P) graph in Boyle's Law? \* 1 point

*Mark only one oval.*

- ☐ a. Straight line parallel to P axis;
- ☐ b. Straight line parallel to PV axis:
- ☐ c. Curve with positive slope;
- ☐ d. Curve with negative slope:

#### QUESTION 20

23. 20. If the temperature is increased from 0°C to 30°C at a constant pressure of gas having fixed mass, then the ratio of initial and final volume will be: \* 2 points

*Mark only one oval.*

- ☐ a. 91 : 101
- ☐ b. 91 : 100
- ☐ c. 91 : 111
- ☐ d. 91 : 121

24. Upload the working for the above question here:

Files submitted:

#### QUESTION 21



25. 21. Which of the following represents a correct chemical formula? \*

1 point

*Mark only one oval.*

- ☐ a. CaCl
- ☐ b. BiPO<sub>4</sub>
- ☐ c. NaSO<sub>4</sub>
- ☐ d. NaS

#### QUESTION 22

26. 22. Which of the following expression at constant pressure represents Charles law? \*

1 point

*Mark only one oval.*

- ☐ a. VT=constant
- ☐ b. PV=constant
- ☐ c. V/T= constant
- ☐ d. T/V=constant

#### QUESTION 23

27. 23. With regard to the species O<sup>2-</sup>, F<sup>-</sup> and Al<sup>3+</sup>, which of the following statements is correct? \*

1 point

*Mark only one oval.*

- ☐ a. Both F<sup>-</sup> and Al contain 20 neutrons each.
- ☐ b. The sum of the neutrons in all three species is 27.
- ☐ c. All three species contain 10 electrons.
- ☐ d. The sum of the protons in all three species is 28

#### QUESTION 24

28. 24. Match the following \*

4 points

*Mark only one oval per row.*

	$\text{ClO}^-$	$\text{ClO}_4^-$	$\text{ClO}_3^-$	$\text{ClO}_2^-$
a. Chlorate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Chlorite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Hypochlorite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Perchlorate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## QUESTION 25

29. 25. An ionic species has 18 electrons, and 20 neutrons. Its charge is +2. What is its mass number? \*

1 point

*Mark only one oval.*

- ☐ a. 36
- ☐ b. 38
- ☐ c. 39
- ☐ d. 40

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