GIRI SIR'S CLASSES HATIGAON, GUWAHATI

CHEMICAL REACTIONS AND EQUATIONS

Class 10 - Science

Time Allowed: 1 hour

General Instructions:

All the questions are compulsory.

Section A

1.	Identify x, y and z in the following reaction :		[1]
	$2 \operatorname{KClO}_3(\mathbf{x}) \xrightarrow{(y)} 2 \operatorname{KCl}(\mathbf{x}) + \operatorname{O}_2(\mathbf{z})$		
	a) x = physical state of KClO ₃ and KCl; y = reaction condition; z = physical state of O ₂ .	 b) x = number of moles of KClO3 ; y = reaction condition; z = no. of molecules of oxygen 	
	c) x = solid; y = liquid; z = gas	d) x = gas; y = reaction condition, z = gas	
2.	$Fe_2O_3+2Al ightarrow Al_2O_3+2Fe$		[1]
	The above reaction is an example of a		
	a) displacement reaction	b) double displacement reaction	
	c) combination reaction	d) decomposition reaction	
3.	What do you observe when sodium sulphate is added	to barium chloride solution?	[1]
	a) Transparent solution is formed	b) Bubbles are seen	
	c) Gas is released	d) A white insoluble substance is formed	
4.	On the basis of evolution or absorption of heat, chem	ical reactions can be divided in how many types ?	[1]
	a) One	b) Two	
	c) Three	d) Four	
5.	Which of the following are combination reactions? i. $2KClO_3 \xrightarrow{\text{Heat}} 2KCl + 3O_2$ ii. $MgO + H_2O \longrightarrow Mg(OH)_2$ iii. $4Al + 3O_2 \longrightarrow 2A1_2O_3$		[1]
	iv. Zn + FeSO ₄ \longrightarrow ZnSO ₄ + Fe		
	a) (ii) and (iii)	b) (i) and (iii)	
	c) (iii) and (iv)	d) (ii) and (iv)	

6. A student added zinc granules to copper sulphate solution taken in a test tube. Out of the following, the correct [1] observations made by the student will be

A. Zinc granules have no regular shape.

Maximum Marks: 50

	B. Zinc granules have silvery grey colour.			
	C. The colour of zinc granules changed to brownish-black.			
	a) C only	b) B only		
	c) A only	d) All of these		
7.	Which of the reaction is used in black and white phot	tography?	[1]	
	a) Combination reaction	b) Decomposition reaction		
	c) Displacement reaction	d) Oxidation reaction		
8.	Copper displaces which of the following metals from its salt solution:		[1]	
	a) NiSO ₄	b) ZnSO ₄		
	c) FeSO ₄	d) AgNO ₃		
9.	In the electrolysis of water, at which electrodes are h	ydrogen and oxygen collected?	[1]	
	a) graphite rods, metal rods	b) cathode, anode		
	c) anode, cathode	d) graphite rods, non-metal rods		
10.	When you place an iron nail in copper sulphate solut	ion, the reddish-brown coating formed on the nail is	[1]	
	a) Smooth and shiny	b) Rough and granule		
	c) Soft and dull	d) Hard and flaky		
11.	$AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ is an example of		[1]	
	a) Combination reaction	b) Redox reaction		
	c) Decomposition reaction	d) Double Displacement reaction		
12.	Assertion: The following chemical equation, is a bal	anced chemical equation.	[1]	
	$2C_2H_6+7O_2\longrightarrow 4CO_2+6H_2O$			
	Reason: In a balanced chemical equation, the total number of atoms of each element may or may not equal or both side of the equation			
		b) Acception and reason both are correct		
	statements and reason is correct explanation	statements but reason is not correct		
	for assertion.	explanation for assertion.		
	c) Assertion is correct statement but reason is	d) Assertion is wrong statement but reason is		
	wrong statement.	correct statement.		
13.	Assertion (A): Brown fumes are produced when lead nitrate is heated.		[1]	
	Reason (R): Nitrogen dioxide gas is produced as a byproduct due to the decomposition of lead nitrate.			
	a) Both A and R are true and R is the correct	b) Both A and R are true but R is not the		
	explanation of A.	correct explanation of A.		
	c) A is true but R is false.	d) A is false but R is true.		
14.	Assertion (A): Carbon dioxide turns lime water milk Reason (R): Carbon dioxide sullies the water.	.y.	[1]	
	a) Both A and R are true and R is the correct	b) Both A and R are true but R is not the		
	a, sourre and re are and march the contest	of source and reare and but read not the		

	explanation of A.	correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
15.	Assertion (A): Photosynthesis is considered as an er	ndothermic reaction.	[1]
	Reason (R): Energy gets released in the process of photosynthesis.		
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
16.	Assertion (A): A chemical reaction becomes faster at higher temperatures. Reason (R): At higher temperatures, molecular motion becomes more rapid.		[1]
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
17.	Assertion (A): The blue colour of copper starts fading when a zinc rod is dipped into it. Reason (R): When an iron nail dipped in the copper sulphate solution then iron displaces copper from the copper sulphate because iron is more reactive then copper.		[1]
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
18.	Write the formula and then balance the following eq	uation.	[1]
	Potassium bicarbonate + Sulphuric acid \rightarrow Potassium sulphate + Carbon dioxide + Water		
19.	Name the type of reaction : Iron reacts with chlorine	to form ferric chloride.	[1]
20.	Write the uses of decomposition reactions.		[1]
21.	What would be the colour of copper sulphate when s	some crystals of it are dissolved in water?	[1]
22.	In the refining of silver, the recovery of silver from s	ilver nitrate solution involved displacement by copper	[1]
	metal. Write down the reaction involved.		
23.	Balance the chemical equation and identify the type	of chemical reaction:	[1]
	$\operatorname{TiCl}_4(l) + \operatorname{Mg}(s) \longrightarrow \operatorname{Ti}(s) + \operatorname{MgCl}_2(s)$		
	Se	ection B	
24.	When a solution of potassium iodide is added to a so	Jution of lead nitrate in a test tube, a reaction takes place.	[2]
	a. What type of reaction is this?		
	b. Write a balanced chemical equation to represent the above reaction.		
25.	Teacher gives the following materials to student		[2]
	a. Marble chips		
	b. Dilute hydrochloric acid		
	c. Zinc granules,		
	Identify the type of reaction when marble chips and tubes.	Zinc granules are added separately to acid taken in two test	
26.	On adding a drop of barium chloride solution to an a obtained.	queous solution of sodium sulphite, white precipitate is	[2]

	a. Write a balanced chemical equation of the reaction involved	
	b. On adding dilute hydrochloric acid to the reaction mixture, white precipitate disappears. Why?	
27.	Why does magnesium powder reacts faster than magnesium ribbon?	[2]
28.	P, Q and R are 3 elements which undergoes chemical reactions according to the following equations:	[2]
	a. $P_2O_3 + 2Q \longrightarrow Q_2O_3 + 2P$	
	b. $2RSO_4 + 2Q \longrightarrow Q_2(SO_4)_3 + 3R$	
	c. $3RO + 2P \longrightarrow P_2O_3 + 3R$	
	Answer the following:	
	i. Which element is more reactive?	
	ii. Which element is least reactive?	
	iii. State the type of reaction listed above.	
29.	What happens when carbon dioxide gas is bubbled through lime water?	[2]
	i. In small amount	
	ii. In excess	
30.	What is the difference between combination and decomposition reactions? Write an equation of each type.	[2]
31.	A person eats chocolate and then digests it. In doing so a physical and a chemical change takes place. Identify	[2]
	the changes and give reasons for your answer.	
32.	A housewife wanted her house to be white washed. She bought 10 kg of quicklime from the market and	[2]
	dissolved in 30 L of water. On adding lime to water, she noticed that the water started boiling even when it was	
	not being heated. Give reason for her observation. Write the corresponding equation and name the product	
	formed.	
	Section C	
33.	Identify the type of reactions taking place in each of the following cases and write the balanced chemical	[3]

equation for the reactions.

a. Zinc reacts with silver nitrate to produce zinc nitrate and silver.

b. Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide.

- 34. A student burns a metal A found in the form of ribbon. The ribbon burns with a dazzling flame & a white powder [3]B is formed which is basic in nature. Identify A & B. Write the balanced chemical equation for the reaction involved.
- 35. 2g of silver chloride is taken in a china dish and the china dish is placed in sunlight for some time. What will be [3] your observation in this case ? Write the chemical reaction involved in the form of a balanced chemical equation. Identify the type of chemical reaction.