State Department of Education Research and Training, Bengaluru

Class 10 Lesson Based Assessment 2025-26 (Model Question Paper)

Chapter 1: Chemical Reactions and Equations

Date: **Subject: Science** **Duration: 60 minutes**

Content Symbol: 83E **Maximum marks: 25**

Question Paper Design

Learning Points

o Chemical Equations o Balancing Chemical Equations o Types of Chemical Reactions o Endothermic and Exothermic Reactions o Oxidation and Reduction and Redox Reactions o Effects of Oxidation Reactions in Daily Life	o All the learning points are considered in this assessment.

Distribution of marks based on learning objectives

Objectives	Marks	Percentage	Percentage for 80 marks in main exam	Remarks
Remembering	5	20	20	o There is provision for minor changes for different chapters. o Give HOT questions wherever is needed.
Understanding	11	44	40	
Applying	5	20	20	
Skill	4	16	20	
Total	**25**	**100**	**100**	

Distribution of marks based on learning type of questions

Type of Questions	Marks	Number of Questions	No. of questions for 80 marks in main exam	Remarks
MCQ	1	2	8	o Give one internal choice question for one 3 marks and one 2 marks questions.
Short answer	1	2	8	
Short Answer	2	2	8	
Long Answer-1	3	2	9	
Long Answer-2	4	1	4	
Long Answer-3	5	1	1	
Total		**12**	**38**	

Distribution of marks based on learning difficulty

Difficulty level	Marks	Percentage	Percentage for 80 marks in main exam	Shara
Easy	8	32	30	o There is provision for minor changes for different chapters.
Normal	12	48	50	
Tough	5	20	20	
Total	**25**	**100**	**100**	

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I. Four options are given for the following questions or incomplete statements. Choose the appropriate answer among them and write it with the option. **3 x 1 = 3**

1. Chip manufacturers flush bags of chips with nitrogen gas because
   A) to prevent corrosion B) to prevent oxidation
   C) to cause corrosion D) to prevent reduction.

2. The following chemical reaction is an example for
   $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$
   A) exothermic reaction B) displacement reaction
   C) endothermic reaction D) redox reaction

3. Silver chloride turns grey when exposed to sunlight. Because
   A) Silver chloride breaks down to form silver.
   B) Silver chloride breaks down to form chlorine.
   C) Silver chloride undergoes oxidation.
   D) Silver chloride undergoes reduction.

II. Answer the following questions. **3 x 1 = 3**

4. What is precipitation reaction?
5. Iron articles are to be painted. Why?
6. $MnO_2 + HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$
   Identify the oxidising and reducing agents in the above equation.

III. Answer the following questions. **2 x 2 = 4**

7. List out the observations that help us to determine that a chemical reaction has taken place.
8. When calcium carbonate is heated, calcium oxide and carbon dioxide are produced. Write the balanced chemical equation for this reaction and state the type of chemical reaction.

   OR

   Name the brown fumes liberated when lead nitrate is heated. Write the balanced chemical equation for this reaction.

IV. Answer the following questions. **2 x 3 = 6**

9. Draw a diagram to show the arrangement of apparatus used to show the electrolysis of water and label the following parts.
   (i) Graphite rod (ii) Anode

10. Write the balanced equations for the following chemical reactions.
    (i) Quick lime has reacted with water.
    (ii) Zinc reacted with copper chloride.
    (iii) Sodium chloride solution is added to silver nitrate solution.

OR

Write the balanced equations for the following chemical reactions.
    (i) Combustion of natural gas.
    (ii) Potassium metal reacts with water.
    (iii) Hydrogen sulphide gas burns in air to give water and sulphur dioxide.

V. Answer the following questions. 1 x 4 = 4

11. Answer the following questions regarding the chemical reaction that occurs when potassium iodide solution is mixed with lead nitrate solution.
    (i) Write the balanced equation for this reaction.
    (ii) Name the precipitate formed in this reaction.
    (iii) Name the colour of the precipitate
    (iv) What type of chemical reaction this is?

VI. Answer the following questions. 1 x 5 = 5

12. i) Name the water insoluble white precipitate formed when 5ml of sodium sulphate solution is added to an equal volume of barium chloride solution in a test tube and the ions responsible for the formation of the white precipitate.
    ii) Take copper sulphate solution in a test tube and dip an iron nail in it. What change do you observe in the test tube after some time? Write the chemical equation for this reaction.
    iii) A magnesium ribbon should be cleaned with sandpaper before burning it in air. Why?

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