Q1. Which statements about: $2PbO + C \rightarrow 2Pb + CO_2$ are incorrect?
Ans: (ii) (a) and (c) are correct answers.
Q2. Reaction type: $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$
Ans: (d) Displacement Reaction
Q3. Dil. HCl + Iron →
Ans: (a) Hydrogen gas and iron chloride are produced.
Q4. What is a balanced chemical equation?
Ans: A chemical equation with equal number of atoms of each element on both sides. It's balanced to satisfy the law of conservation of mass.
Q5. Translate and balance:
(a) $N_2 + 3H_2 \rightarrow 2NH_3$
(b) $2H_2S + 3O_2 \rightarrow 2H_2O + 2SO_2$
(c) $3BaCl_2 + Al_2(SO_4)_3 \rightarrow 3BaSO_4 + 2AlCl_3$
(d) $2K + 2H_2O \rightarrow 2KOH + H_2$
Q6. Balance:
(a) $2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O$
(b) $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$
(c) $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$
(d) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$
Q7. Balanced equations:
(a) $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
(b) $Zn + 2AgNO_3 \rightarrow Zn(NO_3)_2 + 2Ag$
(c) $2Al + 3CuCl_2 \rightarrow 2AlCl_3 + 3Cu$
(d) $BaCl_2 + K_2SO_4 \rightarrow BaSO_4 + 2KCl$
Q8. Identify type of reaction:
(a) $KBr + BaI_2 \rightarrow KI + BaBr_2$ → Double Displacement
(b) $ZnCO_3 \rightarrow ZnO + CO_2$ → Decomposition
(c) $H_2 + Cl_2 \rightarrow 2HCl$ → Combination
(d) $Mg + 2HCl \rightarrow MgCl_2 + H_2$ → Displacement
Q9. Exothermic vs Endothermic
Exothermic: Releases heat (e.g. $CH_4 + O_2 \rightarrow CO_2 + H_2O$ + heat)
Endothermic: Absorbs heat/light/electricity (e.g. $CaCO_3 \rightarrow CaO + CO_2$)
Q10. Why respiration is exothermic?
Ans: Glucose breakdown in presence of oxygen releases energy.

Q11. Why are decomposition and combination opposite?
Ans: Combination joins substances; decomposition breaks them.
Examples:
Combination: $2H_2 + O_2 \rightarrow 2H_2O$
Decomposition: $CaCO_3 \rightarrow CaO + CO_2$
Q12. Decomposition types:
Heat: $CaCO_3 \rightarrow CaO + CO_2$
Light: $2AgCl \rightarrow 2Ag + Cl_2$
Electricity: $2H_2O \rightarrow 2H_2 + O_2$
Q13. Displacement vs Double Displacement
Displacement: $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
Double Displacement: $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$
Q14. Reaction in refining silver:
$Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
Q15. What is a precipitation reaction?
Ans: Formation of insoluble solid (precipitate).
Example: $BaCl_2 + Na_2SO_4 \rightarrow BaSO_4(s) + NaCl$
Q16. Define:
(a) Oxidation: Gain of O_2 or loss of H (e.g., $Zn + O_2 \rightarrow ZnO$)
(b) Reduction: Loss of O_2 or gain of H (e.g., $CuO + H_2 \rightarrow Cu + H_2O$)
Q17. Brown element 'X' becomes black on heating
Ans: X = Copper; Black compound = CuO
Q18. Why paint on iron articles?
Ans: To prevent rusting (corrosion).
Q19. Why are fats flushed with nitrogen?
Ans: To prevent rancidity by avoiding oxidation.
Q20. Define:
Corrosion: Metal decay due to environment
Rancidity: Spoiling of oils/fats due to oxidation