(1) metal oxide only
(2) metal oxide and oxygen
(3) metal and water
(4) metal oxide and water

32. What is the action of heat on alkali metal carbonates?
(1) CO_2 is liberated.
(2) CO is liberated.
(3) Both CO and CO_2 are liberated.
(4) Reaction fails to occur.

33. The nitrates of group I undergo decomposition to form_____.
(1) nitrogen dioxide and oxygen
(2) nitrites and oxygen
(3) nitrogen dioxide and metals oxide
(4) nitrogen, metal oxide and oxygen

34. Bicarbonates on heating decompose to give _____.
(1) carbonates, carbon dioxide and water
(2) carbonates and carbon monoxide
(3) carbonates and water
(4) carbon dioxide only

35. $2KClO_3$ + heat $\rightarrow$ $xKCl + yO_2$. Here x and y are _____.
(1) 1 and 2 (2) 2 and 4
(3) 2 and 1 (4) 2 and 3

36. Which among the following is not a physical change?
(1) Melting of solids to liquids.
(2) Vapourisation of liquids to gases.
(3) Liquefaction of gases to liquids.
(4) Decay of matter.

37. Physical changes are _____.
(1) temporary (2) permanent
(3) irreversible (4) endothermic

38. Which of these will cause a chemical change to occur?
(1) Grinding of wheat into flour.
(2) Lighting of a gas stove.
(3) Evaporation of water from a lake.
(4) Ringing of an electric bell.

39. Chemical changes are _____.
(1) temporary, reversible and a new substance is produced
(2) always accompanied by exchange of light
(3) permanent, irreversible and a new substance is produced
(4) never accompanied by exchange of light and heat energy

40. Which of the following information is conveyed by a chemical reaction?
(1) The colour changes taking place.
(2) The structure of the reactants and products.
(3) The absorption of energy only.
(4) The masses of the reactants and products involved in the reaction.

41. The symbol H stands for _____ of hydrogen.
(1) one atom (2) one molecule
(3) one ion (4) two atoms

42. In one molecule of ammonium sulphide there are _____.
(1) 2 atoms of N, 8 atoms of H, and 1 atom of S
(2) 1 atom of N, 4 atoms of H, and 2 atoms of S
(3) 1 atom of N, 4 atoms of H, and 2 atoms of S
(4) 2 atoms of N, 8 atoms of H, and 2 atoms of S

43. Which among the following reactions are exothermic in nature?
(1) Bond formation
(2) Bond breaking
(3) Combustion of carbon
(4) Both (1) and (3)

44. Neutralisation reaction between an acid and a base is an example of _____.
(1) combination reaction
(2) double displacement reaction
(3) displacement reaction
(4) decomposition reaction

45. The products of combustion reaction are _____.
(1) ash and water vapour
(2) CO_2 and water vapour
(3) wax and water vapour
(4) wax and CO_2

46. Which of these metals do not corrode?
(1) lead (2) copper
(3) platinum (4) silver

47. The sign used to indicate a reversible reaction is _____.
(1) $\rightarrow$ (2) $\leftarrow$
(3) $\leftrightarrow$ (4) $\rightleftharpoons$

48. The reaction $P_4 + 3O_2 \rightarrow 2P_2O_3$ is _____.
(1) synthesis reaction
(2) displacement reaction
(3) decomposition reaction
(4) combustion

49. $2Ag + CuSO_4 \rightarrow Ag_2SO_4 + Cu$. This reaction is a _____.
(1) double displacement reaction
(2) single displacement reaction

(3) acid–base reaction
(4) synthesis reaction

50. $PbO_2 + 4HCl \rightarrow PbCl_2 + 2H_2O + Cl_2$. The substance undergoing oxidation is _____.
(1) lead dioxide (2) hydrochloric acid
(3) hydrogen (4) lead chloride

51. $2Fe + 3H_2O \xrightarrow{heat} Fe_2O_3 + 3H_2\uparrow$ is a(n) _____ reaction.
(1) combination
(2) decomposition
(3) isomerism
(4) displacement

52. In the equation $FeCl_3 + xNaOH \rightarrow yNaCl + Fe(OH)_3$, the values of x and y, respectively, are _____.
(1) 3 and 1 (2) 3 and 3
(3) 2 and 3 (4) 3 and 4

53. Change of H atom to H^+ represents _____.
(1) an acid–base reaction
(2) reduction of hydrogen
(3) oxidation of hydrogen
(4) combustion of hydrogen

54. Which of the following is a decomposition reaction?
(1) $Mg + Cl_2 \rightarrow MgCl_2$
(2) $2Na + H_2O \rightarrow 2NaOH + H_2$
(3) $Cu + 2HNO_3 \rightarrow Cu(NO_3)_2 + 2NO_3 + H_2O$
(4) $ZnCO_3 \rightarrow ZnO + CO_2$

55. Breaking of lead bromide into lead and bromine is an example of _____ reaction.
(1) decomposition
(2) metathesis
(3) displacement
(4) combustion

56. Which of the following chemical equations correctly represent the reaction between sodium carbonate and phosphoric acid?
(1) $3Na_2CO_3 + 2H_3PO_4 \rightarrow 3H_2CO_3 + 2Na_3PO_4$
(2) $3Na_2CO_3 + H_3PO_4 \rightarrow 3NaHCO_3 + Na_3PO_4$
(3) $Na_2CO_3 + H_3PO_4 \rightarrow NaHCO_3 + NaH_2PO_4$
(4) $3Na_2CO_3 + 2H_3PO_4 \rightarrow 3CO_2 + 3H_2O + 2Na_3PO_4$

57. Every system has a tendency to go to the lowest energy state possible. Therefore, _____.
(1) endothermic reactions are spontaneous
(2) ionic reactions are spontaneous
(3) exothermic reactions are spontaneous
(4) covalent reactions are spontaneous

58. The substance that loses electrons in a chemical reaction is called _____.
(1) catalyst (2) reducing agent
(3) oxidising agent (4) none of the above

59. Which of the following changes is not a physical change?
(1) glowing of filament in an electric bulb
(2) combustion
(3) boiling of water
(4) sublimation

60. The rate of a chemical reaction is altered by _____.
(1) nature of reactants
(2) changing temperature
(3) using a catalyst
(4) all the above

61. $N_2 + 3H_2 \longrightarrow 2NH_3$ is an example of _____ reaction.
(1) chemical combination
(2) chemical decomposition
(3) chemical displacement
(4) double displacement

62. Which of the following is an example of a reversible reaction?
(1) $3Fe + 4H_2O \xrightleftharpoons{1273\ K} Fe_3O_4 + 4H_2$
(2) $CaCO_3 \xrightarrow{\Delta} CaO + CO_2\uparrow$
(3) $AgNO_3 + KCl \longrightarrow AgCl\downarrow + KNO_3$
(4) $NaOH + HCl \longrightarrow NaCl + H_2O$