Yakeen NEET 2.0 (Legend)

Mole Concept

DPP-06

1. The law of conservation of mass is valid for all the following, except:
   (1) All chemical reactions
   (2) Nuclear reactions
   (3) Endothermic reactions
   (4) Exothermic reactions

2. After a chemical reaction, the total mass of reactants and products:
   (1) is always increased.
   (2) is always decreased.
   (3) is not changed.
   (4) is always less or more.

3. Which of the following is the best example of law of conservation of mass?
   (1) 12 g of carbon combines with 32 g of oxygen to form 44 g of CO_2.
   (2) When 12 g of carbon is heated in a vacuum there is no change in mass.
   (3) A sample of air increases in volume when heated at constant pressure but its mass remains unaltered.
   (4) The weight of a piece of platinum is the same before and after heating in air.

4. A sample of pure carbon dioxide, irrespective of its source contains 27.27% carbon and 72.73% oxygen. The data support:
   (1) Law of constant composition
   (2) Law of conservation of mass
   (3) Law of reciprocal proportions
   (4) Law of multiple proportions

5. The percentage of hydrogen in water and hydrogen peroxide is 11.1 and 5.9 respectively. These figures illustrate:
   (1) Law of multiple proportions
   (2) Law of conservation of mass
   (3) Law of constant proportions
   (4) Law of combining volumes

6. The law of definite proportions is not applicable to nitrogen oxide because:
   (1) Nitrogen atomic weight is not constant.
   (2) Nitrogen molecular weight is variable.
   (3) Nitrogen equivalent weight is variable.
   (4) Oxygen atomic weight is variable.

7. The percentage of copper and oxygen in samples of CuO obtained by different methods were found to be the same. This illustrates the law of:
   (1) Constant proportions
   (2) Conservation of mass
   (3) Multiple proportions
   (4) Reciprocal proportions

8. A sample of calcium carbonate ($CaCO_3$) has the following percentage composition: Ca = 40%;
   C = 12%; O = 48%
   If the law of constant proportions is true, then the weight of calcium in 4 g of a sample of calcium carbonate obtained from another source will be:
   (Gram atomic mass of Ca = 40 g, C = 12 g and O = 16 g)
   (1) 0.016 g
   (2) 0.16 g
   (3) 1.6 g
   (4) 16 g

9. Cu forms two oxides cuprous and cupric oxides, which law can be proved by the weights of Cu and O?
   (1) Constant composition
   (2) Multiple proportions
   (3) Reciprocal proportions
   (4) Definite proportions

10. Which of the following pairs of compounds illustrate law of multiple proportions?
    (1) KOH, CsOH
    (2) H_2O, D_2O
    (3) Ethane, benzene
    (4) KCl, KBr

11. Element X forms five stable oxides with oxygen of formula X_2O, XO, X_2O_3, X_2O_4, X_2O_5. The formation of these oxides explains:
(1) Law of definite proportions
(2) Law of partial pressures
(3) Law of multiple proportions
(4) Law of reciprocal proportions

12. Two samples of lead oxide were separately reduced to metallic lead by heating in a current of hydrogen. The weight of lead from one oxide was half the weight of lead obtained from the other oxide. The data illustrates:
(1) Law of reciprocal proportions
(2) Law of constant proportions
(3) Law of multiple proportions
(4) Law of equivalent proportions

13. Different proportions of oxygen in the various oxides of nitrogen prove the:
(1) Equivalent proportion
(2) Multiple proportion
(3) Constant proportion
(4) Conservation of matter

14. Equal volume of different gases at any definite temperature and pressure have:
(1) Equal atoms   (2) Equal masses
(3) Equal densities (4) Equal molecules

15. Gay Lussac's law is not valid in the chemical reaction:
(1) $H_2(g) + Cl_2(g) \rightarrow 2HCl(g)$
(2) $3H_2(g) + N_2(g) \rightarrow 2NH_3(g)$
(3) $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$
(4) $CaCO_3(s) \xrightarrow{\Delta} CaO(s) + CO_2(g)$

16. Which of the following represents Avogadro's hypothesis?
(1) Gases react together in volumes which bear a simple ratio to one another.
(2) Equal volumes of all gases under same conditions of temperature and pressure contain equal number of molecules.
(3) Equal volumes of all gases under same conditions of temperature and pressure contain equal number of atoms.
(4) The rates of diffusion of gases are inversely proportional to the square root of their densities

17. Which one of the following pairs of gases contains the same number of molecules?(Gram molecular mass of $O_2 = 32$ g, $N_2 = 28$ g, $CO_2 = 44$ g)
(1) 16 g of O_2 and 14 g of N_2
(2) 8 g of O_2 and 22 g of CO_2
(3) 28 g of N_2 and 22 g of CO_2
(4) 32 g of O_2 and 32 g of N_2

18. Volume occupied by one molecule of water (density $= 1$g cm^{-3}) is:
(Gram molecular mass of $H_2O = 18$ g)
(1) 9.0×10^{-23} cm^3
(2) 6.023×10^{-23} cm^3
(3) 3.0×10^{-23} cm^3
(4) 5.5×10^{-23} cm^3

19. How many years it would take to spend one Avogadro's number of rupees at a rate of 10 lakh of rupees in one second?
(1) 1.90×10^9
(2) 1.90×10^{10}
(3) 1.90×10^{11}
(4) 1.90×10^{12}

Note: Kindly find the Video Solution of DPPs Questions in the DPPs Section.

Answer Key

1.	(2)		11.	(3)
2.	(3)		12.	(3)
3.	(1)		13.	(2)
4.	(1)		14.	(4)
5.	(1)		15.	(4)
6.	(3)		16.	(2)
7.	(1)		17.	(1)
8.	(3)		18.	(3)
9.	(2)		19.	(2)
10.	(3)			