WORKSHEET

Subject: Physical Science

Chapter: Chemical Calculations

Class: 10

Date: 24th April 2020

Solution

Chemical Calculations

A Tick the correct answer MCQ :

1. The law of conservation of mass was proposed by
   (a) Dalton
   (b) Lavoisier
   (c) Arrhenius
   (d) Newton

2. In which type of chemical reactions does the loss of mass happens due to release of energy?
   (a) chemical reaction involving very less amount of energy
   (b) ordinary chemical reactions
   (c) chemical reactions involving tremendous amount of energy
   (d) does not happen

3. Who invented the equation, $E = mc^2$?
   (a) Newton
   (b) Planck
   (c) Einstein
   (d) Dalton

4. In $E = mc^2$, E stands for
   (a) energy
   (b) mass
   (c) velocity of light
   (d) time

5. In $E = mc^2$, m stands for
   (a) velocity of light
   (b) time
   (c) mass
   (d) energy

6. In $E=mc^2$, c stands for
   (a) velocity of light
   (b) momentum
   (c) time
   (d) none of these

7. The equation relating mass to energy is
   (a) $E = mc^2$
   (b) $E^2 = mc^2$
   (c) $E = m^2c$
   (d) $E^3 = m^2c$

8. Calculate the vapour density of SO_2.
   (a) 16
   (b) 32
   (c) 54
   (d) none of these

9. A & B react to produce C & D. Which one is the correct alternative ?
   (a) Total mass of A & B > Total mass of C & D
   (b) Total mass of A & B = Total mass of C & D
   (c) Total mass of C & D > Total mass of A & B
   (d) none of these

10. The relationship between atomic mass (M) and vapour density (D) of a gaseous substance is
    (a) 2M = D
    (b) $M = D^2$
    (c) M = 3D
    (d) M = 2D

11. In which year was the law of conservation of mass discovered ?
    (a) 1778
    (b) 1774
    (c) 1764
    (d) 1758

12. How much oxygen would be produced by heating 24.5 g potassium chlorate ?
    (a) 9.6 g
    (b) 7.4 g
    (c) 9.9 g
    (d) 5.7 g

13. In any chemical reaction, the sum total of mass and energy
    (a) increases
    (b) decreases
    (c) remains constant
    (d) none of these

14. How much CO_2 is evolved on heating of 10 Kg limestone ?
    (a) 4.8 Kg
    (b) 4.4 Kg
    (c) 9.8 Kg
    (d) 6.8 Kg

15. The average vapour density of air is
    (a) 14.4
    (b) 16.5
    (c) 17.2
    (d) 25

16. The velocity of light in vacuum is
    (a) 4×10^9 ms^{-1}
    (b) 3×10^8 ms^{-1}
    (c) 5×10^9 ms^{-1}
    (d) none of these

17. The relation between mass and number of moles of a substance is
    (a) no. of mole = $\dfrac{\text{molar mass}}{\text{mass}}$
    (b) molar mass = $\dfrac{\text{no. of mole}}{\text{mass}}$
    (c) no. of mole = $\dfrac{\text{mass}}{\text{molar mass}}$
    (d) none of these

18. How much ammonia would be produced on heating 10.7 g ammonium chloride ?
    (a) 5.4 g
    (b) 5.8 g
    (c) 5.9 g
    (d) none of these

19. How many gram of $CaCO_3$ reacts with excess amount of dil. HCl to produce 66 g CO_2 ?
    (a) 170 g
    (b) 150 g
    (c) 220 g
    (d) 110 g

20. How much quick lime will be produced from 10 Kg limestone ?
    (a) 5.6 kg
    (b) 10 kg
    (c) 9.6 kg
    (d) none of these

21. How many grams of hydrogen is needed to produce 72 g water ?
    (a) 8 g
    (b) 10g
    (c) 20 g
    (d) 16 g

22. How much O_2 would evolve on heating 122.5g potassium chlorate ?
    (a) 47 g
    (b) 49 g
    (c) 48 g
    (d) 50 g

23. How much H_2SO_4 is needed to completely dissolve 3 g $MgCO_3$?
    (a) 3.5 g
    (b) 3.7 g
    (c) 3.8 g
    (d) none of these

24. How much limestone is needed to produce 4.4 g CO_2 ?
    (a) 10 g
    (b) 20 g
    (c) 30 g
    (d) 15 g

25. Mass of 1L H_2 at STP is
    (a) 0.089 g
    (b) 0.9 g
    (c) 0.50 g
    (d) 80 g

26. What information do we get from chemical equations ?
    (a) mole numbers of reactants and products
    (b) volume of reactants and products at STP
    (c) ratio of masses of reactants and products
    (d) masses of reactants and products.

27. V.D of a gas is 22. At STP, volume of 44 g of the gas is
    (a) 11.2 L
    (b) 5.6 L
    (c) 22.4 L
    (d) none of these

28. As per law of conservation of mass and energy, the mass of products in an endothermic reaction
    (a) shall decrease proportionally
    (b) shall increase proportionally
    (c) may decrease or increase proportionally
    (d) none of these

29. How much hydrogen is required to produce 36 g water ?
    (a) 4 g
    (b) 10 g
    (c) 15 g
    (d) 20 g

30. Rusting of iron involves conservation of
    (a) mass
    (b) energy
    (c) density
    (d) none of these

Answers

1. (b)	2. (c)	3. (c)	4. (a)	5. (c)	6. (a)	7. (a)	8. (b)	9. (b)	10. (d)
11. (b)	12. (a)	13. (c)	14. (b)	15. (a)	16. (b)	17. (c)	18. (a)	19. (b)	20. (a)
21. (a)	22. (c)	23. (a)	24. (a)	25. (a)	26. (c)	27. (c)	28. (b)	29. (a)	30. (a)

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