

WBBSE MADHYAMIK

CHAPTER 3 CHEMICAL CALCULATION

STUDY MATERIAL

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MCQ

1. The relation between matter and energy: $E = mc^2$ is called:

(a) Principle of Conservation of Mass)

(b) Principle of Conservation of Energy)

(c) Theory of Relativity)

(d) Theory of Einstein

Ans. (b) Principle of Conservation of Energy

2. What is the volume of 0.5 moles of oxygen gas?

(a) 32 grams

(b) 16 grams

(c) 3.2 grams

(d) 48 grams

Ans. (b) 16 grams.

3. What is the relationship between the molecular weight and vapor density of a gas?

(a) Molecular mass and vapor density are equal.

(b) The vapor density is twice the molecular weight.

(c) The molecular mass is twice the vapor density.

(d) none of these

Ans. (c) The molecular weight is twice the vapor density.

4. Who propounded the principle of the indestructibility of matter :

(a) Lavoisier

(b) Einstein

(c) Dalton

(a) Lavoisier.

Ans. (d) Rutherford

5. The formula for the conversion of mass into energy in a chemical reaction is:

(a) $E = mc^2$

(b) $E=mc$

(c) $E = m^2c$

(d) $E^2 = mc^2$

(a) $E = mc^2$

6. How much amount of reactant will get the amount of product, its calculations are done in which -

(a) molecular motion

(b) stoichiometry

(c) Chemistry

(d) Life Sciences

Ans. (b) stoichiometry.

7. The gram molecular mass of H₂O is:

(a) 15 grams

(b) 17 grams

(d) 3 grams

(c) 18 grams

Ans. (c) 18 grams

8. The molecular mass of CH₄ will be :

(a) 14 grams

(b) 15 grams

(d) 17 grams

(c) 16 grams

Ans. (c) 16 grams

9. Whose weight is more?

(a) one gram atom of nitrogen

(b) one mole of water

(c) one mole of sodium.

(d) one molecule of hydrogen

Ans. (c) one mole of sodium

10. What will be the volume of 48 grams of ozone at NTP?

(a) 1 liter

(b) 2.24 liters

(c) 22.4 liters

(d) 4.8 liters

Ans. (c) 22.4 liters.

1 Marks

1. What is the gram-molecular mass of nitrogen? ($N = 14$)

Answer: The gram-molecular mass of nitrogen is 28 grams.

2. What is the mass of 2.24 liters of CO_2 at STP? 2

Answer: The mass of 2.24 liters of CO_2 at STP is 4.4 grams.

3. What is the number of molecules in 1.8 grams of water?

Answer: The number of molecules in 1.8 grams of water is 6.023×10^{22} .

4. What is the molar volume of the gas at STP?

Answer: The molar volume of a gas at STP is 22.4 liters.

5. The unit of which physical quantity is a mole?

Answer: The unit of measure of substance is the mole.

6. Name a powerless unit.

Answer: Mole.

7. Who gave the theory of relativity?

Answer: Albert Einstein

8. Write the equation of the Theory of Relativity.

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