

# CHEAPEST PMT ONLINE TEST SERIES

AIIMS/NEET TOPPER PREPARE QUESTIONS



AUTHENTIC  
QUESTIONS

COMPLETE  
ANALYSIS



SYLLABUS  
CHAPTERWISE

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## Mole Concept

### Assignment

Monday, September 12, 2016

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- If  $m$  atoms of X weigh 15 g and  $4m$  atoms of element Z whose atomic weight is 30 u, weigh 45 g, determine the atomic weight of X.**  
**Ans. 40 u.**
- A sample of protein was analyzed for metal content and analysis revealed that it contained magnesium and titanium in equal amount (by weight). If these are the only metallic species present in the protein and it contains 0.015% metals by weight, determine the minimum possible molar mass of this protein. [M: Mg = 24, Ti = 48]**  
**Ans.  $6.4 \times 10^5$  u**
- How the gram molecular weight of a substance will be affected if definition of atomic mass unit is changed from (1/12)th part to (1/6)th part by weigh of an atom of C-12?**
- If 10 g of reactants are allowed to react, at the end, the sum of masses of products formed and reactants remaining unreacted will be still 10 g. This fact is in accordance with which law?**
- 5 mole of  $\text{CO}_2$  are present in a gaseous sample. How many molecules of  $\text{CO}_2$  are present in the sample?**
- A sample of He gas occupies 5.6 litre volume at 1 atm and 273K. How many mole of He are present in the sample? (Ans. 0.25)**
- Which is heaviest :**  
**(A) 25 g of Hg (B) 2 mole of  $\text{H}_2\text{O}$  (C) 2 mole of  $\text{CO}_2$  (D) 4 g-atom of O**
- The number of carbon atoms present in a signature, if a signature written by carbon pencil weights  $1.2 \times 10^{-3}$  g is**  
**(A)  $12.04 \times 10^{20}$  (B)  $6.02 \times 10^{19}$  (C)  $3.01 \times 10^{19}$  (D)  $6.02 \times 10^{20}$**
- 29.5mg of an organic compound containing nitrogen was digested according to Kjeldahl's method and the evolved ammonia was absorbed in 20 mL of 0.1M HCl solution. The excess of the acid required 15 mL of 0.1M NaOH solution for complete neutralization. The percentage of nitrogen in the compound is:**  
**(A) 23.7 (B) 29.5 (C) 59.0 (D) 47.4**
- A gaseous hydrocarbon gives upon combustion 0.72 g of water and 3.08 g of  $\text{CO}_2$ . The empirical formula of the hydrocarbon is:**  
**(A)  $\text{C}_3\text{H}_4$  (B)  $\text{C}_6\text{H}_5$  (C)  $\text{C}_7\text{H}_8$  (D)  $\text{C}_2\text{H}_4$**
- 2 moles of H atoms at NTP occupy a volume of (a) 11.2 litres (b) 44.8 litres (C) 2 litres (d) 22.4 litres.**
- One mole of oxygen gas is the volume of .**  
**(a) 1 litre of oxygen at S.T.P.**  
**(b) 32 litres of oxygen at S.T.P.**  
**(c) 22.4 litres of oxygen at S.T.P.**  
**(d)  $6.02 \times 10^{23}$  molecules of oxygen at any temperature and pressure.**
- Number of electrons in 1.8 ml of  $\text{H}_2\text{O}$  is-**  
**a)  $6.023 \times 10^{23}$  b)  $0.6022 \times 10^{23}$  c)  $3.011 \times 10^{23}$  d)  $6.022 \times 10^{24}$**
- Which of the following is correct ?**

- (a)  $\text{g-mol.wt} = \text{mol. wt in gm} = \text{wt. of } 6.02 \times 10^{23} \text{ atom}$
- (b)  $\text{Mole} = \text{g-mol.wt}$
- (c)  $\text{Mole} = \text{N molecules} = 6.02 \times 10^{23} \text{ Molecules}$
- (d) None of the above

15. Which sample contains the largest number of atoms?

- (a) 1 mg of  $\text{C}_4\text{H}_{10}$
- (b) 1 mg of  $\text{N}_2$
- (c) 1 mg of Na
- (d) 1 mL of water

16. What is the mass of  $3.0115 \times 10^{20}$  atoms of mercury? The atomic weight of mercury is 200.?

Ans. 0.1

17. Morphine contains 67.3% carbon, 4.6% nitrogen (by mass) and remaining are the other constituents. Calculate the relative number of carbon and nitrogen atoms in morphine.

Ans. 17/1

18. A sample of oxygen contains only  $\text{O}^{16}$  and  $\text{O}^{18}$  atoms in 4000:1 atomic ratio. Calculate the average neutrons per oxygen atom?

Ans 8.0005

19. A mixture of  $1.65 \times 10^{21}$  molecules of X and  $1.85 \times 10^{21}$  molecules of Y weighs 0.638 g. If the molecular weight of X is 42, what is the molecular weight of Y?

Ans.170.27

20. A given mixture consists only of pure substance X and pure substance Y. The total weight of the mixture is 3.72 g. The total number of moles is 0.06. If the weight of one mole of Y is 48 g and there is 0.02 mole of X in the mixture, what is the weight of one mole of X?

Ans. 90

21. The density of a gaseous substance is 1.5 ( $\text{C}_2\text{H}_6 = 1$ ). Calculate the volume occupied by 9.0 g of the gaseous substance at STP (1 atm and  $0^\circ\text{C}$ ).

Ans 4.48L

22. A gaseous mixture contains 4 g oxygen and 14 g nitrogen. What is the average molecular weight of the mixture?

23. The molecular weight of a sample of  $\text{PCl}_5$  is found to be 180. What is the degree of dissociation of  $\text{PCl}_5$  into  $\text{PCl}_3$  and  $\text{Cl}_2$ ?

Ans.0.1139

24. Cortisone is a molecular substance containing 21 atoms of carbon per molecule. The weight percentage of carbon in cortisone is 69.98%. What is the molecular weight of cortisone?

Ans.360.1

25. The following questions consist of two statements.

Mark (A) If both Statements are CORRECT, and the Statement-II is the CORRECT explanation of Statement-I.

(B) If both Statements are CORRECT, but the Statement-II is not the CORRECT explanation of Statement-I.

(C) If Statement-I is CORRECT but Statement-II is INCORRECT.

(D) If Statement-I is INCORRECT but Statement-II is CORRECT.

Statement-I : Vapour density of sulphur vapour relative to oxygen is 2 because sulphur atom is twice as heavy as that of oxygen atom.

Statement-II : Vapour density depends upon the molecular state of the substance in vapour state

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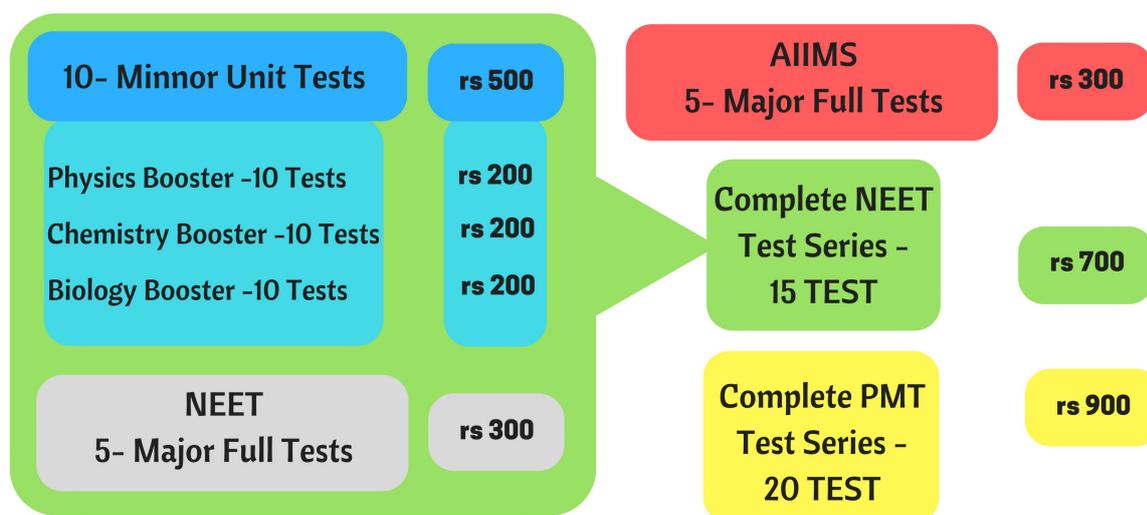
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