

## **Chemistry [ DPP ]**

### **Mole Concept**

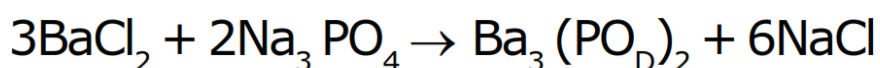
#### **DPP - 2**

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## DPP-2

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- 1.** If 0.5 moles of  $\text{BaCl}_2$  is mixed with 0.2 moles of  $\text{Na}_3\text{PO}_4$  the maximum number of moles of  $\text{Ba}_3(\text{PO}_4)_2$  that can be formed is -



- (A) 0.7                      (B) 0.5  
(C) 0.3                      (D) 0.1
- 2.** If 8 ml. of uncombined  $\text{O}_2$  remain after exploding  $\text{O}_2$  with 4 ml. of hydrogen, the number of ml. of  $\text{O}_2$  originally were -
- (A) 12                      (B) 2  
(C) 10                      (D) 4

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3. 4 gms. of hydrogen are ignited with 4 gms of oxygen. The weight of water formed is -
- (A) 0.5 gm                      (B) 3.5 gm  
(C) 4.5 gm                      (D) 2.5 gm
4. For the reaction  $A + 2B \longrightarrow C$ , 5 mole of A and 8 mole of B will produce
- (A) 5 mole of C  
(B) 4 mole of C  
(C) 8 mole of C  
(D) 13 mole of C

5. If 1.6 gms of  $\text{SO}_2$   $1.5 \times 10^{22}$  molecules of  $\text{H}_2\text{S}$  are mixed and allowed to remain in contact in a closed vessel until the reaction  $2\text{H}_2\text{S} + \text{SO}_2 \longrightarrow 3\text{S} + 2\text{H}_2\text{O}$ , proceeds to completion. Which of the following statement is true ?  
(A) Only 'S' and ' $\text{H}_2\text{O}$ ' remain in the reaction vessel.  
(B) ' $\text{H}_2\text{S}$ ' will remain in excess  
(C) ' $\text{SO}_2$ ' will remain in excess  
(D) None
6. If 0.5 mol of  $\text{BaCl}_2$  is mixed with 0.1 mole of  $\text{Na}_3\text{PO}_4$ , the maximum number of mole of  $\text{Ba}_3(\text{PO}_4)_2$  that can be formed is:-  
(A) 0.7 (B) 0.05  
(C) 0.30 (D) 0.10

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7. 12 lit. of  $H_2$  and 11.2 lit. of  $Cl_2$  are mixed and exploded. The composition by volume of mixture is–
- (A) 24 lit. of  $HCl$  (g)
  - (B) 0.8 lit.  $Cl_2$  and 20.8 lit.  $HCl$  (g)
  - (C) 0.8 lit.  $H_2$  and 22.4 lit.  $HCl$  (g)
  - (D) 22.4 lit.  $HCl$  (g)
8. Which of the following is/are not affected by temperature?
- (A) molarity
  - (B) molality
  - (C) normality
  - (D) none of these
9. A molar solution is one that contains one mole of the solute in
- (A) 100 gr of solvent
  - (B) one litre of the solvent
  - (C) 1000 gr of solvent
  - (D) one litre of the solution
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- 10.** The weight of oxygen required to completely react with 27 gms of 'Al' is  
(A) 8 gm (B) 16 gm  
(C) 32 m (D) 24 gm
- 11.** 'X' grams of Calcium carbonate was completely burnt in air. The weight of the solid residue formed is 28 g. The value of 'X' (in grams) is  
(A) 44 (B) 200  
(C) 150 (D) 50
- 12.** The composition of residual mixture will be if 30 g of Mg combines with 30 g of oxygen  
(A) 40 g MgO + 20 g O<sub>2</sub>  
(B) 45 g MgO + 15 g O<sub>2</sub>  
(C) 50 g MgO + 10 g O<sub>2</sub>  
(D) 60 g MgO only

- 13.** If 5 ml of methane is completely burnt the volume of oxygen required and the volume of  $\text{CO}_2$  formed under the same conditions are  
(A) 5 ml, 10 ml    (B) 10 ml, 5 ml  
(C) 5 ml, 15 ml    (D) 10 ml, 10 ml
- 14.** 0.7 moles of potassium sulphate is allowed to react with 0.9 moles of barium chloride in aqueous solutions. The number of moles of the substance precipitated in the reaction is  
(A) 1.4 moles of potassium chloride  
(B) 0.7 moles of barium sulphate  
(C) 1.6 moles of potassium chloride  
(D) 1.6 moles of barium sulphate
- 15.** The number of moles of  $\text{Fe}_2\text{O}_3$  formed when 0.5 moles of  $\text{O}_2$  and 0.5 moles of Fe are allowed to react are  
(A) 0.25                      (B) 0.5  
(C)  $\frac{1}{3}$                         (D) 0.125

- 16.**  $\text{KC/O}_3$  decomposes to  $\text{KC/}$  and  $\text{O}_2$ . If the volume of  $\text{O}_2$  obtained in this reaction is 1.12 lit at STP, weight of  $\text{KC/}$  formed in the reaction is  
(A) 7.45 grams      (B) 2.48 grams  
(C) 4.96 grams      (D) 1.24g
- 17.** How many litres of oxygen at STP. are required for complete combustion of 39 gms of liquid Benzene? (Atomic weights  $\text{C} = 12$ ,  $\text{H} = 1$ ,  $\text{O} = 16$ )  
(A) 84                      (B) 22.4  
(C) 42                      (D) 11.2
- 18.**  $\text{H}_2\text{O}_2$  is sold as a solution of approximately 5.0 g  $\text{H}_2\text{O}_2$  per 100 ml of the solution. The molarity of this solution is approximately  
(A) 0.15 M              (B) 1.5 M  
(C) 3.0 M                (D) 3.4 M



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- 19.** The amount of oxalic acid (eq.wt.63) required to prepare 500 ml of its 0.10 N solution is  
(A) 0.315 g                      (B) 3.150 g  
(C) 6.300 g                      (D) 63.00 g
- 20.** The molality of a solution having 18 g of glucose dissolved in 500 g of water is  
(A) 1 m                          (B) 0.5m  
(C) 0.2m                        (D) 2 m
- 21.** The molarity of pure water is  
(A) 100 M                      (B) 55.6M  
(C) 50 M                        (D) 18 M
- 22.** If 5.85 g of NaCl is dissolved in 90 g of water, the mole fraction of solute is  
(A) 0.0196                      (B) 0.01  
(C) 0.1                            (D) 0.2

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- 23.** Amount of oxalic acid required to prepare 250ml of N/10 solution (MW of oxalic acid = 126) is  
(A) 1.5759                      (B) 3.15  
(C) 15.75                        (D) 63.0
- 24.** The mass of  $\text{Na}_2\text{CO}_3$  required to prepare 500ml of 0.1M solution is  
(A) 10.6g                        (B) 5.3g  
(C) 2.65 g                        (D) 7.95g
- 25.** 50 ml of 10N  $\text{H}_2\text{SO}_4$ , 25ml of 12N HCl and 40ml of 5N  $\text{HNO}_3$  are mixed and the volume of the mixture is made 1000 ml by adding water. the normality of resulting solution is  
(A) 1N                              (B) 2N  
(C) 3N                              (D) 4N

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- 26.** The molarity of NaOH in the solution prepared by dissolving its 4 g in enough water to form 250 mL of the solution is
- (A) 0.2                      (B) 0.4  
(C) 0.1                      (D) 0.25
- 27.** A solution is prepared by adding 2 g of substance A to 18 g of water. The mass percent of the solute is
- (A) 10                      (B) 20  
(C) 40                      (D) 25

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## **ANSWER KEY**

<b>1.</b>	<b>D</b>	<b>2.</b>	<b>C</b>	<b>3.</b>	<b>C</b>
<b>4.</b>	<b>B</b>	<b>5.</b>	<b>C</b>	<b>6.</b>	<b>B</b>
<b>7.</b>	<b>C</b>	<b>8.</b>	<b>B</b>	<b>9.</b>	<b>D</b>
<b>10.</b>	<b>D</b>	<b>11.</b>	<b>D</b>	<b>12.</b>	<b>C</b>
<b>13.</b>	<b>B</b>	<b>14.</b>	<b>B</b>	<b>15.</b>	<b>A</b>
<b>16.</b>	<b>B</b>	<b>17.</b>	<b>A</b>	<b>18.</b>	<b>B</b>
<b>19.</b>	<b>B</b>	<b>20.</b>	<b>C</b>	<b>21.</b>	<b>B</b>
<b>22.</b>	<b>A</b>	<b>23.</b>	<b>A</b>	<b>24.</b>	<b>B</b>
<b>25.</b>	<b>A</b>	<b>26.</b>	<b>B</b>	<b>27.</b>	<b>A</b>