

SOLUTIONS

TEST _____

Various

Date: _____

1. Find the number of equivalents in 147g H_2SO_4 . (H_2SO_4 :98)
A) 3 B) 5 C) 2 D) 4 E) 7
2. What is the normality of a solution which is prepared with 117g of NaCl and 4000ml water? (NaCl :58.5)
A) 0.2 B) 0.1 C) 0.5 D) 0.05 E) 0.01
3. What is the molarity of a solution of $CaCO_3$ which is 10 % concentrated by mass? (d:1.75 g/ml; $CaCO_3$: 100)
A) 1.5 B) 1.75 C) 3.5 D) 0.35 E) 0.75
4. What is the mass of NaCl in a solution which is 17,5 % concentrated by mass and has a mass of 400g?
A) 35 B) 17.5 C) 140 D) 70 E) 8.75
5. If we mix 250ml of 4M solution with 250ml of 6M solution. What is the final molarity?
A) 5 B) 4 C) 6 D) 0.5 E) 1.5
6. What is the Molarity of a solution prepared by 245g H_3PO_4 and 2000ml water? (H_3PO_4 : 98 g/mol)
A) 2.5 B) 1 C) 0.25 D) 0.125 E) 1.25
7. What is the concentration of OH^- ion in 2L HCl solution of 0.5 M and 2L of 1M NaOH after neutralization reaction takes place?
A) 0.25 B) 1 C) 0.5 D) 1.5 E) 2
8. To neutralize 250ml of 6M H_2SO_4 solution how many ml of 1.5 M NaOH solution should be added?
A) 1000 B) 1500 C) 750 D) 2000 E) 1750
9. What is the molarity of a solution prepared with 8g of NaOH and 100g water?(NaOH:40 g/mol)
A) 0.2 B) 1 C) 2 D) 0.1 E) 0.02
10. What is the normality of solution prepared by 120g NaOH and 600ml water?(NaOH:40 g/mol)
A) 2.5 B) 5 C) 3 D) 4 E) 1.25
11. What is the molarity of $Ba(OH)_2$ solution if we know that it's normality is 4?
A) 2 B) 4 C) 3 D) 4/3 E) 1
12. What is percent concentration by mass of $CaCO_3$ solution if we know that it's molarity is 1M? (d:2 g/ml; $CaCO_3$:100)
A) 50 % B) 5 C) 25 % D) 15 % E) 45 %
13. What is the molecular weight of X if we know that if we put 148 g of $X(OH)_2$ into 500ml of water we will obtain a solution which has 4M concentration? (O:16;H:1)
A) 20 B) 74 C) 40 D) 57 E) 17
14. What is the percent concentration by volume of a solution which contains 250ml alcohol and 500ml water?
A) 33% B) 30% C) 45% D) 22% E) 40%
15. What is the molarity of a solution prepared with 342g of $Ba(OH)_2$ if it's volume is 1000ml? ($Ba(OH)_2$:171)
A) 2 B) 1 C) 3 D) 4 E) 5
16. Find the mass of NaCl in 15% by mass solution which has a mass of 600g.
A) 33 B) 45 C) 60 D) 30 E) 90
17. What is the density of a solution of H_3PO_4 if it's molarity is 2M and it is 10% concentrated by mass? (H_3PO_4 :98)
A) 1 B) 0.98 C) 2 D) 1.96 E) 0.49
18. What is the molarity of a solution if it is prepared with 20g NaOH and 100g water?(NaOH:40 g/mol)
A) 5 B) 3 C) 0.5 D) 0.3 E) 2.5
19. $Ca(OH)_x$ solution has molarity 2 and normality 4. What is x?
A) 5 B) 1 C) 4 D) 3 E) 2
20. If we mix 600ml of 2,5M solution with 400ml of 3.5M solution what is the final molarity?
A) 2.9 B) 1.5 C) 1.4 D) 3.1 E) 3.5
21. Find the number of equivalents of 128.25 g of $Ba(OH)_2$. ($Ba(OH)_2$:171 g/mol)
A) 1 B) 0.75 C) 0.5 D) 1.5 E) 1.75
22. I 0.5 M of NaCl solution, II 1 M of NaCl solution, III 1.25 M of NaCl solution. If their volumes are equal what is relation between their vapor pressure?
A) $P_I > P_{II} > P_{III}$ B) $P_{III} > P_I > P_{II}$ C) $P_I > P_{II} > P_{III}$
D) $P_{III} > P_I > P_{II}$ E) $P_I > P_{II} > P_{III}$
23. Find the molarity of a solution which is prepared with 17.1g of $Al_2(SO_4)_3$ if volume of water is 1000ml. ($Al_2(SO_4)_3$:342)
A) 0.05 B) 0.025 C) 0.5 D) 0.25 E) 5
24. If 200ml of 5 M solution and 300ml of 3M solution are mixed what will be the final concentration?
A) 1.9 B) 1.5 C) 0.95 D) 3.8 E) 4
25. 100g of $CaCO_3$ is dissolved into 200ml water. Find the normality of the solution.($CaCO_3$: 100 g/mol)
A) 10 B) 5 C) 7 D) 8 E) 2
26. 49g of H_2SO_4 are added into 500ml water. Find the ion concentration of H^+ ion. (H_2SO_4 :98 g/mol)
A) 1 B) 2 C) 4 D) 0.5 E) 0.25

SOLUTIONS

TEST _____

Various

Date: _____

27. If 200ml of 5M of HCl are mixed with 800ml of 0.625M of NaOH. Find the final H^+ ion concentration.
 A) 1 B) 1.5 C) 0.75 D) 0.5 E) 2
28. I 0.5 M of NaCl solution, II 1 M of NaCl solution, III 0.75 M of NaCl solution. What is the relation between boiling points?
 A) $B_I > B_{III} > B_{II}$ B) $B_{II} > B_{III} > B_I$ C) $B_{III} > B_I > B_{II}$
 D) $B_I > B_{II} > B_{III}$ E) $B_{II} > B_I > B_{III}$
29. What is the mass of $Al_2(SO_4)_3$ needed to prepare 1000ml of 0.5 M solution? ($Al_2(SO_4)_3$:342 g/mol)
 A) 171 B) 342 C) 85.5 D) 128.25 E) 213.75
30. Find the molarity of a solution which contains 0.17 g of $AgNO_3$ and 250 ml volume.($AgNO_3$:170 g/mol)
 A) 0.001 B) 0.002 C) 0.004 D) 0.04 E) 0.02
31. How many grams of $Ca(OH)_2$ can be neutralized using 50ml of 2M HCl solution? ($Ca(OH)_2$:74 g/mol)
 A) 3 B) 3.7 C) 1.85 D) 2 E) 4
32. 3M of HCl solution is mixed with 0.5M of HCl solution to obtain 1L of 1,5M HCl solution. Find V_1/V_2 .
 A) 2/3 B) 3/4 C) 1/2 D) 1/4 E) 3/2
33. Find the number of moles of CH_3COOH if we have 2kg solution which is 8.5% concentrated by mass. (CH_3COOH : 60g/mol)
 A) 1.5 B) 2.83 C) 4 D) 1.75 E) 3.44
34. Find the molarity of 54% concentrated solution by mass of $CaCO_3$.($CaCO_3$:100 g/mol;density:1.25 g/ml)
 A) 5.75 B) 5.5 C) 6 D) 6.75 E) 6.5
35. What is the mass of NaCl in 0.5 M solution which has a volume of 500ml?(NaCl: 58.5 g/mol)
 A) 0.25 B) 12.5 C) 14.625 D) 10.625 E) 7.625
36. Find the mass of $CaCO_3$ in a 5M solution which has a volume of 300ml.
 A) 100 B) 150 C) 75 D) 50 E) 200
37. H_3PX_4 solution has the molarity of 4M and volume 500ml. If the mass of H_3PX_4 is 196g.Find the molecular weight of X.(H:1;P:31)
 A) 8 B) 32 C) 14 D) 40 E) 16
38. 500ml of 7M solution is mixed with 300ml of 5M solution. Find the final concentration of the solution.
 A) 5.75 B) 5.5 C) 6.25 D) 6 E) 6.5
39. What is the molarity of solution which is prepared by dissolving 150g $CaCO_3$ in 300g water? ($CaCO_3$:100g/mol)
 A) 5 B) 3 C) 4 D) 2 E) 1
40. How many grams of NaCl should be added in 500g water to obtain 2 molal solution?(NaCl:58.5 g/mol)
 A) 58.5 B) 29.25 C) 87.75 D) 14.625 E) 117
41. If we have a solution with volume 600ml, in it alcohol has a volume of 90 ml. What is solution's percent concentration by volume?
 A) 25 B) 20 C) 15 D) 11 E) 10
42. If we have 800ml solution which is 15% concentrated by volume, what is volume of water?
 A) 400 B) 240 C) 340 D) 120 E) 680
43. What is the percent concentration by mass of a solution of 5M of $CaCO_3$? ($CaCO_3$:100g/mol; d_{sol} =2.5 g/ml)
 A) 25% B) 20% C) 15% D) 30% E) 10%
44. 256.5g of $X_2(SO_4)_3$ is put into 500ml water and the molarity is found to be 1,5M.What is molar mass of X? (O:16;H:1)
 A) 40 B) 34 C) 54 D) 17 E) 27
45. If the solution is 30% concentrated by mass and has a mass of 540g, find the mass of salt in it.
 A) 54 B) 162 C) 108 D) 17 E) 216
46. Find the molarity of NaCl solution which is 10% concentrated by mass.(NaCl: 58,5g/mol; d_{sol} :1.17g/ml)
 A) 5 B) 3 C) 4 D) 1 E) 2
47. Find the molarity of NaCl solution which has a volume of 300ml and contains 175.5 g salt. (NaCl:58,5 g/mol)
 A) 10 B) 5 C) 15 D) 3 E) 4
48. Find the molality of a solution which has a mass of 300g and contains 150g $CaCO_3$.($CaCO_3$:100 g/mol)
 A) 5 B) 10 C) 3 D) 15 E) 9
49. What is the mass of NaCl in 4kg solution which is 30%by mass?
 A) 1kg B) 1.2kg C) 2.8kg D) 2.4kg E) 0.6kg
50. What is the volume of alcohol in 630ml if the concentration of solution is 40%?
 A) 126 B) 252 C) 504 D) 315 E) 129

A C B D A E A D C B
A B C A A E D A E A
D C A D A B D B A C
B A B D C B E C A A
C E B E B E A A B B