Molecular Weight and Mole Calculations

I. Find the molecular weight or formula weight for each of the compounds shown below:

1. H_3PO_4
2. $AlCl_3$
3. $Dy(OH)_3$
4. $K_2C_4H_4O_6$
5. H_2SO_4
6. N_2O_5
7. $CuSO_4 \cdot 5H_2O$
8. $NiSO_4$
9. $Sn(OH)_4$
10. $(NH_4)_3PO_4$
11. $Fe(C_2H_3O_2)_3$
12. SO_2
13. $KAl(SO_4)_2 \cdot 12H_2O$
14. $NaIO_4$
15. $Pr(OH)_3$
16. $K_4Fe(CN)_6$
17. Nd_2O_3
18. $Sb(NO_3)_3$
19. K_3PO_4
20. $Ga_2(SO_4)_3$
21. zinc acetate
22. copper (I) sulfate
23. carbon dioxide
24. calcium bicarbonate
25. nitric acid
26. aluminum nitrate
27. ammonium sulfate
28. barium chloride dihydrate
29. ferrous phosphate
30. strontium hydroxide
31. sodium sulfite
32. magnesium nitride

(continued)

33. hydrochloric acid
34. ferric sulfate
35. lead (II) bromide
36. cesium chloride
37. copper (II) nitrate
38. magnesium bromide
39. iron (III) hydroxide
40. ammonium carbonate

II. Express each of the following in grams.

1. 1.0 mol of KBr
2. 1.0 mol of $CaCl_2$
3. 2.0 mol of AlF_3
4. 0.50 mol of KNO_3
5. 0.30 mol of $NaHCO_3$
6. 0.25 mol of potassium iodate
7. 0.10 mol of iron (III) carbonate
8. 0.20 mol of sodium sulfate decahydrate
9. 8.0 mol of sodium dihydrogen phosphate
10. 0.30 mol of phosphorus pentachloride
11. 1.50 mol of HCl
12. 0.736 mol of H_2SO_4
13. 0.042 mol of KOH
14. 0.147 mol of NH_4OH
15. 1.26×10^{-4} mol of $HC_2H_3O_2$

(continued)

16. 2.6 mol of lithium bromide

17. 0.395 mol of magnesium nitrate

18. 2.4×10^{-3} mol of sodium phosphate

19. 4.6×10^{-3} mol of ammonium chloride

20. 3.85×10^{-6} mol of lead (II) ions

III. Convert each of the following to its equivalent in moles.

1. 86.84 g of LiBr

2. 62.3 g of MgF_2

3. 17.1 g of H_2S

4. 302.7 g of $ScCl_3$

5. 8.5 g of PH_3

6. 33.4 g of KNO_3

7. 17.2 g of H_3PO_4

8. 38.1 g of $FeCl_3$

9. 15.9 g of $Ca(NO_3)_2$

10. 8.8 g of potassium carbonate

11. 5.0 g of ammonium sulfate

12. 2.5 g of copper (II) chloride

13. 30.0 g of tin (II) nitrate

14. 0.257 g of arsenic pentachloride

(continued)