2. 6) x 2 2 0 . 6 = N (100 E 0 . 0 = A (9 = 4 C = 4 N × 11 = 11) Given h=0.5 mol He NA = 6.022 × 1023 atoms He mol He

Required NHe = ?

Salution

N = n × NA

NHe = 6.5 mol He x 6.022x1023 atoms He

= 3,011 × 1023 NHe = 3 × 10²³ atoms He

... The number of helim atoms is 3×10^{23}

= 9.5 mol Max 6.000 x10 30 dtame Ma

= 2,1077 × 10°

11 30 = 10 × NA

All amoth "CIX 1.0" = 12.14

is all and to the the

3.6) Gilven Required N= 3.2×1012 atoms H N=19 BOOK OXTO DE NA = 6.922 × 10 23 atoms H Sign 2 C. 000 2 10 00 0 100 0 old your Salutian N= n × NA h = W = 3.2 × 10 12 atoms How enone 0 × T. 1 = 2 6.022 × 1023 atoms H/mol H = 5.3138492 ×10-12 COJ3884.9 = n = 5.3 × 10-12 mol H St som 2 = 5 a ... there are 5.3×10-12 moles of H atoms

Given

Alomic mass of Al = 26.982U

Alomic mass of O = 15.499U

Alomic mass of H = 1.909U

Moleanlar mass = mater mass

Required motor mass of AI(OH)3=?

305-31 2 O 30 SAME THE

solution

Molar mass = atomic mass of AI + 3(atomic mass of 0) + 3(atomic mass H) = 26.982U + 3(15.999)U + 3(1.008)Umolar mass = 78.003 g/mol = 78.09 molar mass of AI(OH)g is 78.09 g/mol

Dil Given

Atomic mass of Si = 28.086 U
Atomic mass of Ci = 35.453 U
molecucular mass = molecumass

Required mass of 51 Cly = ?

Solution

molar mass = atomic mass of Si + 4(atomic mass of CI)= 28.08bU + 4(35.453)Umolar mass = 169.898 g [mpl] = 169.9 g [mol] = 169.9 g [mol] = 169.9 g [mol]= 169.9 g [mol]

4000 15 62 012 Alm

= 63.0 9/mol

6. a) Given MN=14.907 g/mal Moz= 2(15.499) = 31.499 glmo MNO2 = MN + MO2 = 14.007 + 31.498 = 46.005 9/mol 1 n= 5 mol NO2 Regulred m NO3 = ? Solution m=n×M MNO2 = 5mo 1 WO2 × 46.005 g/mol = 230.025 g = 200 g

... The mass of NO2 is 200 grams

```
65)
 Given
                                        3000 10 01× 601 = 230
 Neo=7.5×1025 molecules CO
 Mco = Mc + Mo = 12.011 + 15.449 = 28.01 glmol
 NA = 6.022×1023 nonspecules co
                    mal co
 Required
                                            MY W IN
  mc0 = ?
                2015 2 1.9 470 atom Fo x 5 5 1945 8/4-1
  Solution
                1,000 x 1000 atoms Fe / mal Fe
  m= N×M
     NA
                                 E 31 501/1/10.0 =
                                   0.017g
 Mco = Nco x Mco
          The was is 0.000 forms of AM
       = \frac{7.5 \times 10^{25} \text{ molecules CO} \times 28.01 \text{ g/mol}}{6.922 \times 10^{23} \text{ molecule CO / mol CO}}
       = 3488.458984
        = 3500 grams
   ... The mass of CO is 35009
```

Given MNagh = MNa+Mo+MH = 22.990+15.999+1.008 = 39.997 g/mol m NaOH = 50 g Required h=? Solution m= hx M $n = \frac{509}{39.9479/mol}$ = 1,250094 mol = I mal NaOH ... There as I male of NaOH

8. a) Gilven N=3.8 mol CHar McHy = Mex MHy = 12.011x 4(1.008) = 16.043 glmo1 NA = 6.022 11023 MEN CHy FU m=3.8×16043= 60,96399 Required Nc =? Solation mol chy Cantoms molety

6.8 6 Iven 445 376 WAS CAM. m= 100g MGHT MC2+MH6 = 2(12.911) + 6(1.008) = 30.07 9 fmol 646 NA = 6.022 × 1023 C2H6 f4 mol C2H6 # of (in (2H6 = 2 Required #c = } $N_c = ?$ Ne = m x NA x # of C = 100 \$ x 6.022 x 1023 C2+6 fy x 2 c atoms
30.07 9/molents mol (2+16 S2+6+6) $= \frac{100}{30.07} (6.922 \times 10^{23}) \times 2$ = 4.0053×1024 Catom = 4 × 1929 C atoms :. There are 4×1024 Cambon atoms in 1009 of ethane.

9= 10AL WAGET #2 > Mic. & "I male! × 17 6 5 34.58 × 422 704 G = = 12 × 35.453 × 1 9 Cl 1) 4 4 60 EP = 1 13 à 000° = is the mass of Unional in a male Clive