1) ω = m (substance) / m (solution) *100%

m (solution) = m (substance) + m (solvent)

ω = m (substance) / (m (substance) + m (solvent))*100%

m (solvent) = m (H_2O) = 20 g

ω = 80% or 0.8

m (substance) = m (methyl alcohol) =X

0.8 = X / (X + 20)

0.8*X+16 = X

16 = 0.2 *X

X = 80

m (substance) = m (methyl alcohol) = 80 g

2) n_{NaCl} – amount of NaCl = m_{NaCl}/ M(NaCl) = 12.6 g/58.5g/mole =0.215 moles
   n_{KCl} – amount of KCl= m_{KCl}/ M(KCl) = 21.3 g/74.5g/mole =0.2859 moles
   n_{H2O} – amount of H_2O = m_{H2O} / M(H_2O) = 122 g/18 g/mole = 6.778 moles
   N – mole fraction of NaCl
   n_{tot} –total amount of all constituents in a solution = n_{NaCl} + n_{KCl} +n_{H2O} = 0.215 moles + 0.2859 moles + 6.778 moles = 7.2789 moles
   N = n_{NaCl} / (n_{NaCl} + n_{KCl}+n_{H2O}) = 0.215 moles / 7.2789 moles = 0.0295 or 2.95 %
3) M (H_3PO_4) = 98 g / mole
   n = m(H_3PO_4) / M (H_3PO_4) = 10 g/ 98 g / mole = 0.102 moles
   V (solution) = 104 mL = 0.104 L
   C_M = n (solute)/ V (solution, L) = 0.102 moles / 0.104 L = 0.98 M