

**Question 1**

Calculate the molar masses of the following substances:

- a)  $N_2$                       b)  $Cl_2$                       c)  $CH_4$                       d)  $NaCl$                       e)  $MgCl_2$   
 f)  $CaSO_4$                       g)  $KOH$                       e)  $Na_2CO_3 \cdot 10H_2O$

**Question 2**

Calculate the amount of the following:

- a) 9 g water                      b) 24 g water  
 c) 1.35 g chlorine              d) 100 g glucose  
 e) 85 g ammonia                f) 0.01 g ammonium sulfate  
 g) 50 g methanol ( $CH_3OH$ )    h) 50 g ethanol ( $CH_3CH_2OH$ )

**Question 3**

Calculate the mass of the following:

- a) 0.1 mol water                      b) 0.47 mol methane ( $CH_4$ )  
 c) 5.8 mol potassium hydroxide    d) 2.7 mol nitrogen gas  
 e) 1.32 mol ethanol                f) 1.32 mol ethanoic acid  
 g) 72 mol propene ( $C_3H_6$ )        h) 0.36 mol nitric acid

**Question 4**

Complete the following table

Substance		Ions	Moles of ions per mole of salt	Molar mass
Name	Formula			
Sodium nitrate	$NaNO_3$	$Na^+, NO_3^-$	2	$85.0 \text{ g mol}^{-1}$
	$BaCl_2$			
Calcium hydrogen carbonate				
	$K_2Cr_2O_7$			
		$Cu^{2+}, SO_4^{2-}$		