Answer on Question 81115 in General Chemistry

.m (NaHCO_3) =78.3 g

V(CO_2) =?

.m (CO_2) =?

When baking soda is heated it will be reaction

2NaHCO_3=Na_2CO_3+CO_2+H_2O
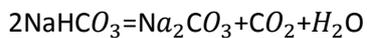
Find the amount of substance of NaHCO_3

.n=$\frac{m}{Mr}$=$\frac{78.3}{84}$=0.93 mol

Mr (NaHCO_3)=Ar(Na)+Ar(H)+Ar(C)+3Ar(O)=23+1+12+3×16=84

.n(CO_2) =$\frac{1}{2}$ n(NaHCO_3)=$\frac{1}{2}$ × 0.93=0.465 mol

V(CO_2)=n × V_M=0.465× 22.4=10.42 l

Mr (CO_2)= Ar(C)+2Ar(O)=12+2×16=44

.m (CO_2) =n×Mr=0.465×44=20.46 g