Question 11: 5 g Na2CO3 and Na2SO4. This sample is dissolved and the volume made up to 250 mL, 25 mL 20 mL 0.1 M H2SO4 . Calculate the % of Na2SO4 in the sample

ANSWER- (OPTION 2 , 57.6)

Only Na_2CO_3 is react with H_2SO_4.

$Na_2CO_3 + H_2SO_4 \rightarrow Na_2SO_4 + H_2CO_3$

Milli-moles of Na_2CO_3 = Milli-moles of H_2SO_4 = 20×0.1=2

Milli-moles of Na_2CO_3 in 250 mL of solution= (25/250)×2=20

Weight of Na_2CO_3 = 20×106×10^{-3} = 2.12 g

% of Na_2CO_3 = (2.12/5)×100=42.4

∴% of Na_2SO_4 = 100−42.4 = **57.6% = ANSWER**