Question 12: An impure sample of sodium oxalate (Na2C2O4) weighing 0.20 g is dissolved in an aqueous solution of H2SO4and the solution is titrated at 70° C, requiring 45 ml 0.02 M KMnO4 solution. The endpoint is overrun, and the back titration is carried out with 10 ml of 0.1 M oxalic acid solution. Find the per cent purity of Na2C2O4 in the sample.

ANSWER: OPTION 2

Meq. of $Na_2C_2O_4$ = Meq. of $KMnO_4$ reacted

Total Meq. of $KMnO_4^-$excess Meq. of KMnO4 reacted with $H_2C_2O_4$

$$= 45×0.02×5−10×0.1×2$$

$$= 2.5.$$

Now for finding weight of $Na_2C_2O_4$, we have

$$2.5 = 1000×(W_{Na2C2O4}/134)×2$$

$$W_{Na2C2O4} = 0.1675g.$$

% purity of $Na_2C_2O_4$ in sample = (0.1675/0.2)×100

ANSWER= **= 83.75%.**