

QUALITATIVE AND QUANTITATIVE ANALYSIS OF ORGANIC COMPOUND

EXERCISE

1. In Duma's method for estimation of nitrogen 0.4 gm of an organic compound gave 60 ml of nitrogen collected at 300 K temperature and 720 mm pressure. Calculate the percentage composition of nitrogen in the compound : (Aqueous tension at 300 K = 20 mm)
- (1) 16.72% (2) 15.93%
(3) 15.72% (4) 7.46%
2. Carbon and hydrogen are estimated in organic compounds by :
- (1) Kjeldahl's method (2) Duma's method
(3) Liebig's method (4) Carius method
3. Lassaigne's test for the detection of nitrogen will fail in case of :
- (1) NH_2CONH_2
(2) $\text{NH}_2\text{CONHNH}_2 \cdot \text{HCl}$
(3) $\text{NH}_2\text{NH}_2 \cdot \text{HCl}$
(4) $\text{C}_6\text{H}_5\text{NHNH}_2 \cdot 2\text{HCl}$
4. In a Lassaigne's test for sulphur in the organic compound with sodium nitroprusside solution the violet colour formed is due to :
- (1) $\text{Na}_4[\text{Fe}(\text{CN})_5\text{NOS}]$
(2) $\text{Na}_3[\text{Fe}(\text{CN})_5\text{S}]$
(3) $\text{Na}_2[\text{Fe}(\text{CN})_5\text{NOS}]$
(4) $\text{Na}_3[\text{Fe}(\text{CN})_6]$
5. During Lassaigne's test, N and S present individually in an organic compound changes into :
- (1) Na_2S and NaCN
(2) NaSCN
(3) Na_2SO_4 and NaCN
(4) Na_2S and NaCNO
6. The purpose of boiling sodium extract with conc. HNO_3 before testing for halogen is :
- (1) to make solution acidic
(2) to make solution clear
(3) to convert Fe^{+2} to Fe^{+3}
(4) to convert NaCN to HCN and Na_2S to H_2S so that they do not interfere with AgNO_3
7. In Duma's method and Kjeldahl's method, respectively nitrogen present is estimated as :
- (1) N_2, NH_3 (2) NH_3, N_2
(3) NO_2, NH_3 (4) N_2, N_2
8. The sodium extract of an organic compound on acidified with acetic acid and addition of lead acetate solution gives a black precipitate. The organic compound contains :
- (1) Nitrogen (2) Halogen
(3) Sulphur (4) Phosphorous
9. When N and S both are present in an organic compound, the sodium extract with FeCl_3 gives :
- (1) Green colour (2) Blue colour
(3) Yellow colour (4) Red colour
10. During Lassaigne's test nitrogen containing organic compound when fused with sodium metal forms 'X' while sulphur containing organic compound. When fused with sodium metal forms 'Y'. Then identify X and Y :
- (1) $\text{X} = \text{NaCN}$; $\text{Y} = \text{Na}_2\text{S}$
(2) $\text{X} = \text{NaNC}$, $\text{Y} = \text{Na}_2\text{S}$
(3) $\text{X} = \text{NaNO}_2$, $\text{Y} = \text{Na}_2\text{SO}_4$
(4) $\text{X} = \text{NaCN}$; $\text{Y} = \text{Na}_2\text{SO}_4$
11. In Lassaigne's test, the organic compound is fused with sodium metal as to :
- (1) Hydrolyse the compound
(2) Form a sodium derivative
(3) Burn the compound
(4) convert nitrogen, sulphur or halogen if present into soluble ionic sodium compound
12. A sample of 0.5 g of an organic compound was analysed using Kjeldahl's method. The ammonia evolved was absorbed in 50 ml of 0.5 M H_2SO_4 , the unused acid after neutralisation by ammonia consumed 80 ml of 0.5N NaOH . Then calculate percentage of nitrogen in organic compound :
- (1) 28 (2) 42
(3) 56 (4) 26

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- 13.** In Kjeldahl's method used for estimation of nitrogen, ammonia evolved from 0.6 g of sample of organic compound neutralised 20 ml of 1 N H_2SO_4 . Then calculate % of nitrogen in that compound :
- (1) 37.33 (2) 46.67
(3) 45.77 (4) 43.33
- 14.** In the estimation of sulphur by carius method 0.480 g of organic compound give 0.699 g of Barium sulphate. The percentage of sulphur in the compound is (Atomic masses ; Ba = 137, S = 32, O =16)
- (1) 15% (2) 35%
(3) 20% (4) 30%
- 15.** 1.4 g of an organic compound was digested according to Kjeldahl's method and the ammonia evolved was absorbed in 60 mL of M/10 H_2SO_4 solution. The excess sulphuric acid requires 20 mL of M/10 NaOH solution for neutralisation. The percentage of nitrogen in the compound is
- (1) 3 (2) 5
(3) 24 (4) 10
- 16.** In Duma's method of estimation of nitrogen 0.35 g of an organic compound gave 55 ml of nitrogen collected at 300 K temp. and 715 mm pressure. The percentage of nitrogen in compound is (aqueous tension at 300 K = 15 mm)
- (1) 15.45 (2) 16.45
(3) 17.45 (4) 14.45

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	3	3	1	4	1	3	4	1	4	1	2	3	4
Que.	16														
Ans.	2														