

CHEMISTRY · JEE MAIN

Purification & Characterisation of Organic Compounds

Chapter-wise previous year questions, with answer key

16

PYQS

2021-2025

PAPERS

2

TOPICS

Quantitative Elemental Analysis

Purification Methods

- 1 Attempt each question on paper first — they're grouped by topic, newest papers first.
- 2 Check yourself against the answer key at the end.
- 3 Got one wrong? Tap "Step-by-step solution" under it for the full working.

Stuck on a question?

Every question has a free step-by-step solution on PrepWiser — tap "Step-by-step solution" under it.

Practise this chapter online with instant answer checking: prepwisser.in/learn · No signup needed to browse

Quantitative Elemental Analysis · 14 PYQs

Q1 JEE Main 2025 · 7 Apr · Shift 1

An organic compound weighing 500 mg, produced 220 mg of CO_2 , on complete combustion. The percentage composition of carbon in the compound is _____. (nearest integer)

(Given molar mass in g mol^{-1} of C : 12, O : 16)

Numerical answer — enter the value.

Step-by-step solution ► [prepwiser.in/questions/6UnDcnGVtT](https://www.prepwiser.in/questions/6UnDcnGVtT)

Q2 JEE Main 2025 · 3 Apr · Shift 2

In Dumas' method for estimation of nitrogen 0.4 g of an organic compound gave 60 mL of nitrogen collected at 300 K temperature and 715 mm Hg pressure. The percentage composition of nitrogen in the compound is (Given : Aqueous tension at 300K = 15mmHg)

(A) 15.71%

(B) 17.46%

(C) 7.85%

(D) 20.95%

Step-by-step solution ► [prepwiser.in/questions/pDSHF8hQq8](https://www.prepwiser.in/questions/pDSHF8hQq8)

Q3 JEE Main 2025 · 3 Apr · Shift 1

0.5 g of an organic compound on combustion gave 1.46 g of CO_2 and 0.9 g of H_2O . The percentage of carbon in the compound is _____. (Nearest integer)

[Given : Molar mass (in g mol^{-1}) C : 12, H : 1, O : 16]

Numerical answer — enter the value.

Step-by-step solution ► [prepwiser.in/questions/x4YtpiyFa-](https://www.prepwiser.in/questions/x4YtpiyFa-)

Q4 JEE Main 2025 · 23 Jan · Shift 1

During "S" estimation, 160 mg of an organic compound gives 466 mg of barium sulphate. The percentage of Sulphur in the given compound is _____. %.

(Given molar mass in g mol^{-1} of Ba : 137, S : 32, O : 16)

Numerical answer — enter the value.

Step-by-step solution ► [prepwiser.in/questions/rTGJkaFQ39](https://www.prepwiser.in/questions/rTGJkaFQ39)

Q5 JEE Main 2023 · 13 Apr · Shift 1

An organic compound gives 0.220g of CO_2 and 0.126g of H_2O on complete combustion. If the % of carbon is 24 then the % of hydrogen is _____ $\times 10^{-1}$. (Nearest integer)

Numerical answer — enter the value.

Step-by-step solution ► [prepwiser.in/questions/XOGAv_wXkr](https://www.prepwiser.in/questions/XOGAv_wXkr)

Q6 JEE Main 2023 · 31 Jan · Shift 1

On complete combustion, 0.492g of an organic compound gave 0.792g of CO_2 . The % of carbon in the organic compound is _____ (Nearest integer)

Numerical answer — enter the value.

Step-by-step solution ► [prepwiser.in/questions/tW0sleaf-M](https://www.prepwiser.in/questions/tW0sleaf-M)

Q7 JEE Main 2023 · 25 Jan · Shift 1

In sulphur estimation, 0.471 g of an organic compound gave 1.4439 g of barium sulphate. The percentage of sulphur in the compound is _____ (Nearest Integer)

(Given : Atomic mass Ba: 137 u, S: 32 u, O: 16 u)

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/xh68L5sWQn](https://www.prepwiser.in/questions/xh68L5sWQn)

Q8 JEE Main 2022 · 29 Jul · Shift 2

A 1.84 mg sample of polyhydric alcoholic compound 'X' of molar mass 92.0 g/mol gave 1.344 mL of H_2 gas at STP. The number of alcoholic hydrogens present in compound 'X' is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/TYj1gQnqm6](https://www.prepwiser.in/questions/TYj1gQnqm6)

Q9 JEE Main 2022 · 27 Jul · Shift 1

In Carius method of estimation of halogen, 0.45g of an organic compound gave 0.36g of AgBr. Find out the percentage of bromine in the compound.

(Molar masses :

$$AgBr = 188\text{g mol}^{-1}; Br = 80\text{g mol}^{-1}$$

)

(A) 34.04%

(B) 40.04%

(C) 36.03%

(D) 38.04%

[Step-by-step solution ► prepwiser.in/questions/1pvP7QxBJ5](https://www.prepwiser.in/questions/1pvP7QxBJ5)

Q10 JEE Main 2022 · 26 Jun · Shift 1

On complete combustion 0.30 g of an organic compound gave 0.20 g of carbon dioxide and 0.10 g of water. The percentage of carbon in the given organic compound is _____. (Nearest integer)

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/gPnqO5kmgQ](https://www.prepwiser.in/questions/gPnqO5kmgQ)

Q11 JEE Main 2022 · 24 Jun · Shift 1

A 0.166 g sample of an organic compound was digested with conc. H_2SO_4 and then distilled with NaOH. The ammonia gas evolved was passed through 50.0 mL of 0.5 N H_2SO_4 . The used acid required 30.0 mL of 0.25 N NaOH for complete neutralization. The mass percentage of nitrogen in the organic compound is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/kRdhsfotoY](https://www.prepwiser.in/questions/kRdhsfotoY)

Q12 JEE Main 2021 · 27 Aug · Shift 1

In Carius method for estimation of halogens, 0.2 g of an organic compound gave 0.188 g of AgBr. The percentage of bromine in the compound is _____. (Nearest integer)

[Atomic mass : Ag = 108, Br = 80]

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/pLwn12MWcE](https://www.prepwiser.in/questions/pLwn12MWcE)

Q13 JEE Main 2021 · 27 Jul · Shift 2

Which one of the following set of elements can be detected using sodium fusion extract?

- (A) Sulfur, Nitrogen, Phosphorous, Halogens (B) Phosphorous, Oxygen, Nitrogen, Halogens
(C) Nitrogen, Phosphorous, Carbon, Sulfur (D) Halogens, Nitrogen, Oxygen, Sulfur

Step-by-step solution ► [prepwiser.in/questions/MczmbPg6CV](https://www.prepwiser.in/questions/MczmbPg6CV)

Q14 JEE Main 2021 · 25 Feb · Shift 1

Complete combustion of 1.80 g of an oxygen containing compound ($C_xH_yO_z$) gave 2.64 g of CO_2 and 1.08 g of H_2O . The percentage of oxygen in the organic compound is :

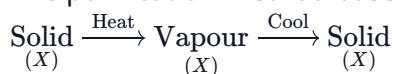
- (A) 51.63 (B) 50.33
(C) 63.53 (D) 53.33

Step-by-step solution ► [prepwiser.in/questions/f1GQOpSfvz](https://www.prepwiser.in/questions/f1GQOpSfvz)

Purification Methods · 2 PYQs

Q15 JEE Main 2025 · 28 Jan · Shift 2

The purification method based on the following physical transformation is :



- (A) Extraction
(B) Crystallization
(C) Distillation
(D) Sublimation

Step-by-step solution ► [prepwiser.in/questions/LztgKjVo4J](https://www.prepwiser.in/questions/LztgKjVo4J)

Q16 JEE Main 2022 · 30 Jun · Shift 1

TLC analysis of a mixture having 3 components (A, B, C) using silica gel as the stationary phase gave following R_f values; for A = 0.72, B = 0.48, C = 0.20.

Regarding the above observations, which one of the following statements is not correct for column chromatography of the mixture?

- (A) A is the most non-polar component
(B) C is the most soluble component in mobile phase
(C) A will be eluted first
(D) C is the most strongly absorbed component

Step-by-step solution ► [prepwiser.in/questions/L9CizdE8T-](https://www.prepwiser.in/questions/L9CizdE8T-)

Answer key — Purification & Characterisation of Organic Compounds

Numbers match the question numbers above. For full working, open the solution link under each question.

1	12	2	A	3	80	4	40	5	56	6	44	7	42	8	6
9	A	10	18	11	63	12	40	13	A	14	D	15	D	16	B

Want the next chapter?

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