

Unit 2: Atoms, molecules and stoichiometry

Subunit 2.3: Formulas

Topical Question No: 1

- 17 Ammonium sulfate, $(\text{NH}_4)_2\text{SO}_4$, and ammonium nitrate, NH_4NO_3 , are used as fertilisers.

These salts have different percentages by mass of nitrogen. They have the same effect as each other on the pH of neutral soil.

Which row is correct?

	higher percentage of nitrogen by mass	effect on pH of soil
A	ammonium nitrate	decrease
B	ammonium nitrate	increase
C	ammonium sulfate	decrease
D	ammonium sulfate	increase

Topical Question No: 2

- 2 Compounds J and K each contain 40% carbon by mass.

What could J and K be?

	J	K
A	a hexose, $\text{C}_6\text{H}_{12}\text{O}_6$	starch, $(\text{C}_6\text{H}_{10}\text{O}_5)_n$
B	a pentose, $\text{C}_5\text{H}_{10}\text{O}_5$	a hexose, $\text{C}_6\text{H}_{12}\text{O}_6$
C	a pentose, $\text{C}_5\text{H}_{10}\text{O}_5$	sucrose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
D	starch, $(\text{C}_6\text{H}_{10}\text{O}_5)_n$	sucrose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

Topical Question No: 3

- 3 Drinking water may contain dissolved calcium hydrogencarbonate, $\text{Ca}(\text{HCO}_3)_2$.

How many electrons are present in a hydrogencarbonate anion?

- A** 30 **B** 31 **C** 32 **D** 33

Topical Question No: 4

- 28 Ethanedioic acid has the formula $\text{HO}_2\text{CCO}_2\text{H}$.

What is the formula of aluminium ethanedioate?

- A** AlC_2O_4 **B** $\text{Al}(\text{C}_2\text{O}_4)_3$ **C** $\text{Al}_2\text{C}_2\text{O}_4$ **D** $\text{Al}_2(\text{C}_2\text{O}_4)_3$

Topical Question No: 5

- 31** Compound Q contains 40% carbon by mass.

What could Q be?

- 1** glucose, $\text{C}_6\text{H}_{12}\text{O}_6$
- 2** starch, $(\text{C}_6\text{H}_{10}\text{O}_5)_n$
- 3** sucrose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

Topical Question No: 6

- 18** In a famous experiment, Wöhler heated 'inorganic' ammonium cyanate in the absence of air. The only product of the reaction was 'organic' urea, $\text{CO}(\text{NH}_2)_2$. No other products were formed in the reaction.

What is the formula of the cyanate ion present in ammonium cyanate?

- A** CNO^- **B** CNO^{2-} **C** CO^- **D** NO^-

Answer Key

1. Error
2. Error
3. Error
4. Error
5. Error
6. Error