O Level Pure Chemistry MCQs

Atomic Structure Test 1.0

Q1

Which statement about nitrogen atoms is **not** correct?

A All nitrogen atoms have the same atomic number.
B All nitrogen atoms have the same chemical properties.
C All nitrogen atoms have the same electronic configuration.
D All nitrogen atoms have the same mass number.

Q2

The table below shows the number of neutrons and electrons in the following four particles.

particle	number of neutrons	number of electrons
P	18	8
Q^+	12	10
R^{2-}	16	10
S	13	11

Which particle is an isotope of **P**?

A Q
B R
C S
D none of the above

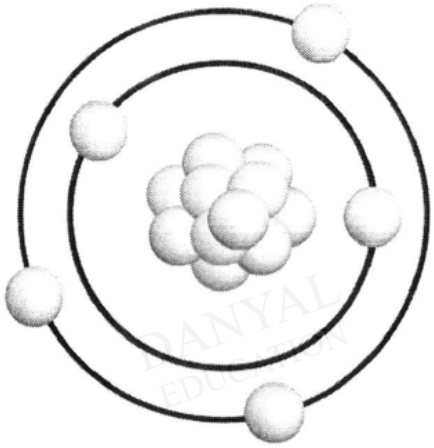
Q3

Which particle has the least number of electrons in its valence shell?

A I
B N^{3-}
C Ne
D O^{2-}

Q4

The diagram represents an atom of an isotope X of an element.



If the element consists of only two isotopes, which one of the following is likely to represent the particles of the other isotope of the element?

	Proton	Neutron	Electron
A	5	6	5
B	5	5	5
C	6	5	5
D	11	12	11

Q5

Which of the following statements concerning molecules is **not** correct?

A A molecule can be attracted to another separate molecule with intermolecular forces.
B A molecule always contains two or more atoms from different elements.
C The atoms in a molecule achieve stable valence electron configurations by sharing of electrons.
D Molecules by themselves do not conduct electricity.

Q6

What do the ions $^{36}S^{2-}$ and $^{37}Cl^{-}$ have in common?

A Both ions contain the same number of nucleons in their nuclei.
B Both ions have the same number of protons.
C Both ions have more electrons than neutrons
D Both ions have 20 neutrons,

Q7

An ion, L^{2-}, has 18 neutrons and 18 electrons.

What does its nucleus contain?

A 16 protons and 16 neutrons
B 16 protons and 18 neutrons
C 18 protons and 16 neutrons
D 20 protons and 18 neutrons

Q8

An ion of formula X^{2-} contains 18 electrons. If the relative atomic mass of X is 32, what is the composition in the nucleus of the ion?

A 14 protons and 18 electrons
B 16 protons and 16 neutrons
C 16 protons and 18 electrons
D 18 protons and 14 neutrons

Q9

Cl -35 and *Cl* - 37 are two isotopes of chlorine.

Which statements are correct?

1 Both isotopes have the same mass number.
2 Both isotopes have the same electronic configuration.
3 Both isotopes have the same physical properties.
4 Both isotopes have the same chemical properties.

A 1 and 2 only
B 1 and 3 only
C 2 and 3 only
D 2 and 4 only

Q10

Manganese sulfide, MnS is a pink solid that contains $^{55}_{25}Mn^{2+}$ and $^{32}_{16}S^{2-}$ ions.

How many **more** protons, neutrons and electrons are there in the $^{55}_{25}Mn^{2+}$ ion as compared to the $^{32}_{16}S^{2-}$ ion?

	protons	neutrons	electrons
A	9	14	5
B	9	14	9
C	9	23	9
D	11	23	9

Answers

Atomic Structure Test 1.0

Q1 D

Q2 B

Q3 A

Q4 B

Q5 B

Q6 D

Q7 B

Q8 B

Q9 D

Q10 A