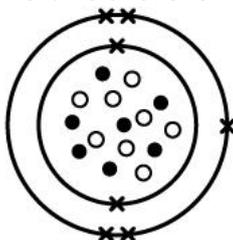


Summary Quiz (Atomic Structure)

Section A: Multiple-Choice

- Which of the following statements about silicon is INCORRECT?
 - It is a semi-metal.
 - It is a solid at room conditions.
 - Its relative atomic mass is 28.1 g.
 - It can be used to make computer chips.
- Which of the following statements about non-metals is correct?
 - They are either gases or solids at room conditions.
 - They have low melting points.
 - They are poor conductors of electricity.
 - They are not malleable.
- Which of the following statements about atoms are correct?
 - All atoms must contain protons, neutrons and electrons.
 - All atoms are electrically neutral.
 - Neutrons are found in the nucleus of an atom.
 - (1) and (2) only
 - (1) and (3) only
 - (2) and (3) only
 - (1), (2) and (3)
- Which of the following information can be obtained from the atomic number of an atom?
 - The number of protons in an atom
 - The number of neutrons in an atom
 - The number of electrons in an atom
 - (1) and (2) only
 - (1) and (3) only
 - (2) and (3) only
 - (1), (2) and (3)
- The following diagram shows the structure of a neutral atom:



Which of the following combinations is correct?

	<u>Number of protons</u>	<u>Number of electrons</u>	<u>Number of neutrons</u>
A.	7	7	8
B.	7	5	8
C.	8	7	7
D.	8	5	7

6. Which of the following statements about ${}_{17}^{37}\text{Cl}$ are correct?
- (1) Its mass number is 37.
 - (2) It has 20 neutrons.
 - (3) Its electronic arrangement is 2, 8, 7.
- A. (1) and (2) only B. (1) and (3) only
C. (2) and (3) only D. (1), (2) and (3)
7. Lead has four isotopes. The relative abundance of ${}^{204}\text{Pb}$, ${}^{206}\text{Pb}$, ${}^{207}\text{Pb}$ and ${}^{208}\text{Pb}$ are 1.4%, 24.1%, 22.1% and 52.4% respectively. What is the relative atomic mass of lead (correct to two decimal places)?
- A. 207.20 B. 207.22
C. 207.24 D. 207.26
8. Which of the following statements about potassium and calcium are INCORRECT?
- A. They are metals.
 - B. They give characteristic flame colour in the flame test.
 - C. They have the same number of occupied electron shells.
 - D. They have the same chemical properties.

Section B: Structural Questions

Rubidium (${}_{37}\text{Rb}$) is a reactive metal. The electronic arrangement of Rb is 2, 8, s, 8, 1.

- (a) (i) What is the value of s?
(ii) How many occupied electron shells are there in a rubidium atom?
- (b) Rubidium has two isotopes, Rb-85 and Rb-87.
- (i) Calculate the number of protons and the number of neutrons in Rb-85.
 - (ii) State the meaning of the term 'isotopes'.
 - (iii) The relative abundance of Rb-87 is 27.8%. Calculate the relative atomic mass of rubidium.

The End

Suggested Answer**Section A**

1.	C	5.	A
2.	D	6.	D
3.	C	7.	C
4.	B	8.	D

Section B

(a) (i) $s = 18$

(ii) 5

(b) (i) Number of protons = atomic number = 37
Number of neutrons = mass number – atomic number = $85 - 37 = 48$

(ii) Isotopes are different atoms of the same element, with the same number of protons but different numbers of neutrons.

(iii) Relative atomic mass of rubidium
 $= 85 \times (1 - 27.8\%) + 87 \times 27.8\%$
 $= 85.6$

The End