Name: Class:

Total Possible Marks: 15

Atoms and Molecules

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1. Describe the structure of an atom using the terms proton, neutron, electron, nucleus and shell in your answer.

Atoms have a small nucleus surrounded by electrons, the nucleus is in the middle of the atom and is made up of protons and neutrons. The electrons occupy shells around the nucleus.

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2. THIS IS A 5 PART QUESTION WHICH CARRIES 5 MARKS

1. What is another name for an electron shell?
2. What is the maximum number of electrons can go into the first shell?
3. What is the maximum number of electrons that can go into the second shell?
4. What is the maximum number of electrons that can go into the third shell?
5. Which shell fills with electrons first?

1. Energy level
2. 2
3. 8
4. 8
5. The lowest energy level fills first.

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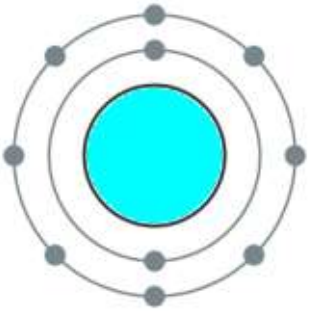
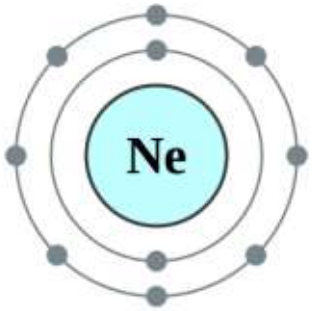
3.



Identify the element shown.



The element has 10 electrons, therefore 10 protons, it is Neon.

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4. What is the relative mass of a proton?

The relative mass of a proton is one (compared to that of a neutron which is also one and an electron which is roughly 1/2000 of the size of a proton.

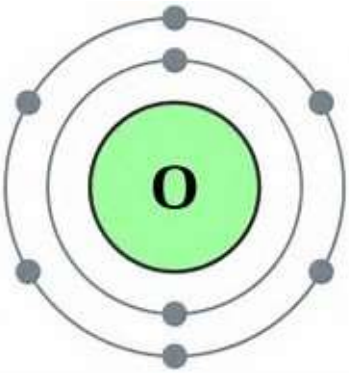
5. Which element has the electron configuration 2, 8, 6 ? — 1

This element has 16 electrons and therefore 16 protons in the nucleus. It is Sulphur (Sulfur)

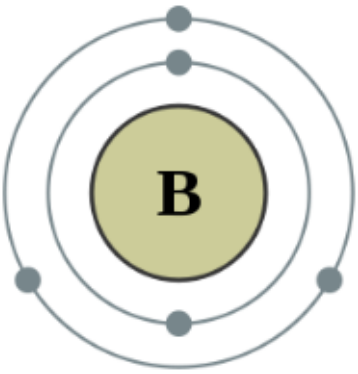
6. Which element has the electron configuration 2, 4 ? — 1

The element has 6 electrons and therefore 6 protons in the nucleus, it is Carbon.

7. Draw the "dot" representation for Oxygen — 1



8. Draw the "dot" representation of the element Boron — 1



9. An atom of selenium contains 34 electrons, how many protons does the nucleus of this atom contain? — 1

34 - this has to be the case because atoms are electrically neutral, so the numbers of protons and electrons must be the same.

10. Atoms are electrically neutral, explain why. — 1

They have the same number of protons as electrons and since protons and electrons have opposite charges of the same size, they cancel each other out.

11. An atom of fluorine has 9 protons in its nucleus, how many electrons does the atom have? — 1

9 - this has to be the case because atoms are electrically neutral, so the numbers of protons and electrons must be the same.